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ABSTRACT

In order to determine the effectiveness of vocational education programs in the California secondary schools and regional occupational centers and programs (ROC/P), a survey was taken of a random selection of 1,164 high school programs and 500 programs of ROC/P. Data were gathered through program self-assessment questionnaires and analyzed into nine areas that could be used as indicators. These nine areas were treated as ordinal scales measuring the following: quality, availability, student services, facilities and equipment, teacher-pupil ratio, teacher qualifications, student achievement, sex fairness, and services for special populations. Mean scale values for each of the nine areas were computed for secondary schools and ROC/Ps separately by principal program, by program area, and for all high school and ROC/P programs. (Tables identifying the principal programs and giving their comparison scores for each of the nine accountability areas are presented in this report, along with comparison data from the previous three years. Some items are summarized.) (KC)

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QUANTITATIVE EVALUATION OF 1981-1982 VOCATIONAL EDUCATION PROGRAMS

Calvin E. Wright and Yungho Kim

Prepared for
Vocational Education Unit
California State Department of Education

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February 1983

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INTRODUCTION

Program Assessment of Vocational Education (PAVE) is one activity being undertaken by the California State Department of Education to meet the evaluation requirements of the federal Vocational Education Amendments of 1976 (P.L. 94-482). It seeks to describe and determine the effectiveness of vocational education programs in California secondary schools and regional occupational centers and programs (ROC/Ps). Each year a representative sample (called a cohort) of 25% of the secondary school districts and ROC/Ps that deliver vocational education services in the state participate in PAVE. This report presents PAVE results for the 1981-82 cohort. There were 94 secondary districts and 15 ROC/Ps in this cohort. Results for the 1978-79, 1979-80, and 1980-81 cohorts were reported previously (Neasham, 1981a, 1981b, Wright & Kim, 1982).

During the fall of 1981 all of the secondary school districts in the PAVE 1981-82 cohort were contacted by telephone to determine which six-digit[1] vocational education programs would be offered at individual schools. Similar information for ROC/P locations was obtained from lists supplied by the three regional vocational education offices. As a result of the survey it was found that the school districts planned to offer a total of 2,768 programs, while ROC/Ps planned to offer 807 programs. Since school districts employed 133 codes to report their offerings while ROC/Ps used 147, program offerings were grouped within program areas using a method consistent with reporting enrollments to the federal government. This grouping reduced the total number of program codes used to 61 for schools and 47 for ROC/Ps.

A sample of program offerings was then selected for each code remaining after the grouping. This was done by randomly selecting a minimum of 10 program offerings (or all of them if less than 10), plus 30% of those in excess of 10. Program offerings at schools and ROC/P locations were treated separately. A total of 1,164 high school programs were thus selected, representing 42% of all high school offerings for the districts in the cohort. Considering the ROC/Ps, 500 program offerings were selected, or 62% of the total of 807. The number of programs offered by program area is shown in Table 1 for both the cohort and the sample.

Program Self-Assessment Questionnaires were then distributed to school and

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[1] The term "six-digit" refers to federal reporting code numbers used for instructional programs within a major program area. For example, Production is a six-digit program in Agriculture.

Table 1

Number of Program Offerings in the Cohort and the Sample

Program Area	High School Offerings		ROC/P Offerings	
	In Cohort	In Sample	In Cohort	In Sample
Agriculture	236	113	106	67
Distributive Education	41	26	75	55
Health Occupations Education	41	31	64	44
Consumer and Homemaking Education	768	287	0	0
Home Economics Related Occupations	52	39	45	37
Industrial Arts	501	208	0	0
Office Occupations	717	251	144	78
Trade and Industrial Occupations	412	209	373	219
All Programs	2,768	1,164	807	500

Note. See Tables B-1 and B-2 in Appendix B for data by individual program.

ROC/P location staff for those program offerings that were included in the sample. The same set of questions was used for all program areas and for schools and ROC/Ps. It was requested that each questionnaire be filled out by the appropriate department head or by one of the program teachers. For many of the questions asked, what was reported was the perceptions of the respondents.

Extensive follow-up activities were undertaken when questionnaires in the sample were not returned. As a result, questionnaires were returned for almost 100% of the sampled programs that were offered. However, in a number of instances schools and ROC/P locations did not actually offer programs that they had planned to offer. Secondary schools reported on 998 program offerings, or 86% of those in the school sample. ROC/P locations reported on 403 offerings, or 81% of those in the ROC/P sample. The number of program offerings in the sample and the number reported are shown by program area in Table 2.

An analysis of the responses received was performed for each item in the questionnaire (California State Department of Education, 1982). Results for items that were also used in the previous PAVE surveys were compared with the

Table 2

Number of Program Offerings in the Sample and the Number Reported

Program Area	High School Offerings		ROC/P Offerings	
	In Sample	Reported	In Sample	Reported
Agriculture	113	104	67	51
Distributive Education	26	19	55	42
Health Occupations Education	31	19	44	36
Consumer and Homemaking Education	287	245	0	0
Home Economics Related Occupations	39	31	37	28
Industrial Arts	208	190	0	0
Office Occupations	251	222	78	67
Trade and Industrial Occupations	209	168	219	179
All Programs	1,164	998	500	403

Note. See Tables B-1 and B-2 in Appendix B for data by individual program.

earlier results. In most cases responses given by the 1982 respondents were comparable to those of the cohorts from the previous years, and there were logical explanations for differences that were noted.

As for the previous surveys, a further quantitative analysis was made of the completed questionnaires. This analysis was suggested by Section 104.402 of the regulations implementing P.L. 94-482 (as given in 42 FR 53842, October 3, 1977). It reads, in part:

> 104.402 Evaluation by State Board.
>
> The State Board shall, during the five-year period of the State plan, evaluate in quantitative terms the effectiveness of each formally organized program or project supported by Federal, State, and local funds. These evaluations shall be in terms of:
>
> (a) Planning and operational processes, such as:
>
> (1) Quality and availability of instructional offerings;
>
> (2) Guidance, counseling, and placement and follow-up services;
>
> (3) Capacity and condition of facilities and equipment;
>
> (4) Employer participation in cooperative programs of vocational education;
>
> (5) Teacher/pupil ratios; and
>
> (6) Teacher qualifications.
>
> (b) Results of student achievement...

(c) Results of student employment success...
(d) The results of additional services, as measured by the suggested criteria under paragraphs (a), (b), and (c) of this section, that the State provides under the Act to these special populations:
(1) Women;
(2) Members of minority groups;
(3) Handicapped persons;
(4) Disadvantaged persons;
(5) Persons of limited English-speaking ability.

On the basis of Section 104.402, nine areas were identified in which Program Self-Assessment Questionnaire items could be used as indicators. These nine areas were treated as ordinal scales measuring qualities which were designated as Quality, Availability, Student Services, Facilities and Equipment, Teacher-Pupil Ratio, Teacher Qualifications, Student Achievement, Sex Fairness, and Services for Special Populations. Some indicators were used for more than one scale. (See Appendix A for a list of questionnaire items used in each area.)

Desirability weights ranging from -3 to +3 were then assigned to the various response alternatives of each questionnaire item. These weights reflected how desirable it is for a program to exhibit the characteristics represented by the response alternative for the scale of concern. It was assumed that the more desirable characteristics a program has, the more effective it is. Using the values assigned to indicators, nine "accountability scale values" were obtained for each individual questionnaire. These scale values were intercorrelated and found to be relatively independent. (See Appendix C.)

Before mean scale values were determined by program, program offerings within a program area were grouped into a smaller number of principal programs than was used for sample selection. These principal programs were identified by grouping 1979-80 enrollment data for schools and ROC/Ps separately. This grouping involved placing some programs into an appropriate "other" category, or collapsing some six-digit programs into their higher order four-digit code. For example, reported offerings of Clerk Typists (14.0901) and Typists (14.0902) programs, which are subdivisions of Typing and Related Occupations (14.09), were combined with reported offerings of Typing and Related Occupations. This grouping resulted in 32 principal school programs (including the "other" categories) and in 24 principal ROC/P programs (also including the "other" categories). The principal programs are identified in Tables B-3 and B-4 in Appendix B. These tables also show 1981-82 enrollments by principal program. Table 3 summarizes 1981-82 enrollments in vocational programs by program area.

Mean scale values for each of the nine areas were computed for secondary

Table 3

1981-82 Enrollments in Vocational Programs for Schools and ROC/Ps

Program Area	Number of Students Enrolled	Percent
HIGH SCHOOL PROGRAMS		
Agriculture	49,968	4.92
Distributive Education	9,693	.95
Health Occupations Education	69,407	6.83
Consumer and Homemaking Education	195,389	19.22
Home Economics Related Occupations	29,318	2.88
Industrial Arts	315,315	31.02
Office Occupations	278,818	27.43
Trade and Industrial Occupations	68,646	6.75
Total	1,016,554	100.00
ROC/P PROGRAMS		
Agriculture	7,431	8.28
Distributive Education	12,118	13.50
Health Occupations Education	6,601	7.35
Home Economics Related Occupations	5,769	6.43
Office Occupations	18,955	21.12
Trades and Industrial Occupations	38,883	43.32
Total	89,757	100.00

schools and ROC/Ps separately by principal program, by program area, and for all high school and ROC/P programs. To aid in the interpretation the mean scale values were expressed in terms of "comparison scores" which have a range of zero to 100. This was done by subtracting the minimum possible raw score for a scale from the obtained raw score, dividing by the possible raw score range, and multiplying by 100. Comparison scores can be used to indicate differences among the vocational education programs in the nine accountability areas. They should be used only with great caution to compare a given program from one scale to another, although ranks by scale can be compared.

Tables identifying the principal programs and giving their comparison scores for each of the nine accountability areas are presented on the following pages.

In each case there is a brief summary of the questionnaire items used in computing the scores. The reader should refer to Appendix A for a complete list. In the discussion of each table, those programs which scored high and low are noted. Where appropriate, speculations are made about reasons for these outcomes and further investigation or other implications are suggested.

In considering the scores displayed in the tables, it should be remembered that both Consumer and Homemaking Education (CHE) and Industrial Arts have goals other than preparation for entry-level gainful employment. Consumer and Homemaking Education programs are often considered as general education programs suitable for imparting living skills to all students; Industrial Arts programs are prevocational. For example, drafting courses in the Industrial Arts area are designed to teach fundamentals as a means of personal development and career exploration. On the other hand, drafting courses in the Trade and Industrial Occupations area are designed to prepare students for entry-level employment in drafting positions. Since CHE and Industrial Arts are not supposed to prepare students for entry-level employment, programs in these areas cannot be expected to score the same as preemployment programs on questions related to placement or employment success. Differences may also be reflected in teacher qualifications: the industrial arts teacher is required to have an industrial arts degree; the trade and industrial instructor must have work experience in the occupation he or she is teaching.

RESULTS IN EACH OF THE NINE AREAS

The comparison scores for the principal high school and ROC/P programs are presented below in two tables for each of the nine accountability areas. Each table shows the number of offerings reported for each program, the comparison scores, and high/low scores. In each high/low score column, the five highest ranking programs on the scale are indicated by the letter H. The five lowest ranking programs are indicated by the letter L. Where ties occurred, more than five high- or low-ranking programs are noted for that scale. The programs are listed by generic titles rather than code numbers, as titles will be more meaningful to most readers. When considering the tables, the reader must remember the remarks made earlier about the purposes of Consumer and Homemaking Education (CHE) and Industrial Arts programs being somewhat different from the purposes of the preemployment programs.

Differences between high school and ROC/P programs are also important in interpreting the results. In general, ROC/P programs are specialized programs offering training for specific occupations. High school programs include general education, prevocational, and introductory courses which do not train students for direct employment upon completion. Also, it is known (CSDE, 1982) that 75% of the ROC/P programs reported consisted of a single course, while 68% of the high school programs were a series of two or more courses.

Since this report describes the results of the fourth in a series of four annual program evaluations, the reader may wish to compare these results with the results of the previous evaluation studies. They were reported in an identical format (Neasham, 1981a, 1981b; Wright & Kim, 1982). It must be understood, however, that there are significant differences in the four studies which limit the direct comparisons that can be made of the results. The major differences were:

1. In the 1980 study (Neasham, 1981b), there was no attempt to separate data reported for high schools from data reported for ROC/Ps, as was done in the 1979, 1981, and current studies. The 1979, 1981, and 1982 studies clearly showed that these two institutions are different in many respects. Therefore, comparisons of tables in this report and in the 1979 (Neasham, 1981a) and 1981 (Wright & Kim, 1982) reports with tables in the 1980 report (Neasham, 1981b) should be made with great caution, except where the programs being compared were offered at only one institution.
2. The questionnaire used in the studies was improved year by year. As a result of item analysis, nonproductive items were eliminated or revised, and

a few new items were added to more adequately address the nine accountability areas. Also, in 1979 three different questionnaires tailored to ROC/P programs, CHE programs, and other high school programs were used. In 1980, 1981, and 1982 a single questionnaire was used, designed primarily for preemployment programs. In 1980 the nine scales were revised to agree with the new questionnaire, and the weights assigned to responses were recalculated. In 1981 some refinements were made in the weights, while in 1982 only a couple of minor improvements were made. Therefore, direct comparisons of scale scores over the four years are not warranted. However, comparisons between 1980 and 1981 can be made cautiously, and comparisons between 1981 and 1982 can be made with less caution.

3. The 1981 and 1982 studies involved obtaining data on a sample of all programs offered by the appropriate cohort, rather than from all programs offered as in 1979 and 1980. As a result, the data included in this report and the 1981 report are based upon a smaller number of respondents than the earlier reports. This may make them less reliable.
4. This report is the first time that an "other" program category is used for each program area, such as Other Agriculture. This was done so that all vocational education enrollments and all programs in a program area were accounted for. As a result, more insight can be gained when all programs in a given area are of concern. However, although the "other" category for each area is identified if it had a high or low comparison score, it should be interpreted cautiously since it is a mixture of possibly unique programs within the program area. For example, in Health Occupations Education, Nursing was identified as a principal program. All remaining programs in the area were placed in Other Health Occupations Education. This category would, therefore, include programs in Dental, Medical Laboratory Technology, Rehabilitation, Environmental Health, and Mental Health Technology, to name a few.

Quality

The Quality scale is designed to measure the quality of the educational process. This scale, the most comprehensive of the nine scales, is based on 38 items. The items are listed in Appendix A. Examples of responses weighted positively are:

- Certificates of successful program completion are used to recognize student success.
- Students are believed to be satisfied or very satisfied with the outcomes of the program.

- o Teacher time allocations for planning and developing curriculum and instructional materials are adequate or very adequate.
- o Vocational student organization activities are an integral, planned part of instruction.
- o Individual training plans are prepared and used for students in the program.
- o An evaluation is periodically made of each student in the program to see if he or she is making progress toward reaching his or her career goal.

Examples of responses weighted negatively are:

- o No record is maintained of what is accomplished by former students.
- o An analysis is never or almost never done to update the skills or occupational competencies that need to be taught in the program.
- o Program teachers do not participate in the selection of instructional equipment and materials.
- o There is no district-wide vocational education advisory committee.

Mean Quality scale comparison scores for high school programs are shown in Table 4. The top ranking programs were in three program areas, Home Economics Related Occupations (HERO), Health Occupations Education, and Agriculture. The programs were Care and Guidance of Children, Nursing, Other Health Occupations Education, Agriculture Production, and Other Agriculture. Care and Guidance of Children also ranked high on Quality in 1980 and 1981, as did Agriculture Production.

Most of the school programs with the lowest Quality scores were in the Industrial Arts area: Metals, Drafting, Electricity/Electronics, Woods, and Other Industrial Arts. With the exception of Other Industrial Arts, which was not included previously, these programs scored low on Quality in 1979, 1980, and 1981. Also scoring low this year were Woodworking Occupations in the Trade and Industrial Occupations (T & I) area, and Other Office Occupations.

The low scores of Industrial Arts programs cannot be accounted for solely by placement or employment success not being expected outcomes. A review of responses to the Quality scale items (given in CSDE, 1982) revealed that, as expected, both CHE and Industrial Arts programs usually had a lower percentage of respondents endorsing response alternatives related to placement or employment success, compared with the percentage for all respondents. However, the percentages for Industrial Arts were also usually lower for most of the other items in the Quality scale. Of special concern are those low-scoring Industrial Arts programs which represented large enrollments in the state in 1981-82: Woods, Drafting, and Metals.

Table 5 shows the mean Quality scale comparison scores for ROC/P programs. Programs with high scores were: Ornamental Horticulture, Nursing, Care and

Table 4

Mean Quality Scale Comparison Scores for High School Programs

Program Area and Program	Number Reported	Comparison Score[a]	High/Low Scores[b]
AGRICULTURE			
Production	31	68	H
Mechanics	22	67	
Ornamental Horticulture	19	63	
Other	32	69	H
DISTRIBUTIVE EDUCATION			
General Merchandise	15	66	
Other	4	60	
HEALTH OCCUPATIONS EDUCATION			
Nursing	12	73	H
Other	7	73	H
CONSUMER AND HOMEMAKING EDUCATION			
Comprehensive Homemaking	41	63	
Clothing and Textiles	45	58	
Foods and Nutrition	49	58	
Other	110	58	
HOME ECONOMICS RELATED OCCUPATIONS			
Care and Guidance of Children	15	74	H
Other	16	66	
INDUSTRIAL ARTS			
Drafting	30	55	L
Electricity/Electronics	18	57	L
Metals	29	54	L
Power/Automotive Mechanics	31	61	
Woods	41	57	L
Other	41	55	L
OFFICE OCCUPATIONS			
Accounting and Computing	47	58	
Filing, Office Machines, Clerical	61	60	
Steno, Secretarial, and Related	48	59	
Typing and Related	52	63	
Other	14	53	L
TRADE AND INDUSTRIAL OCCUPATIONS			
Automotive Services	35	61	
Drafting Occupations	17	62	
Electronic Occupations	14	63	
Graphic Arts Occupations	14	60	
Metalworking Occupations	29	60	
Woodworking Occupations	19	57	L
Other	40	62	

[a]The comparison score is the adjusted mean score divided by the possible range. Comparison scores of 0 to 100 were possible.

[b]H indicates that the program was among the five highest scoring programs, L that it was among the five lowest scoring.

Table 5

Mean Quality Scale Comparison Scores for ROC/P Programs

Program Area and Program	Number Reported	Comparison Score[a]	High/Low Scores[b]
AGRICULTURE			
Mechanics	12	73	
Ornamental Horticulture	18	76	H
Other	21	74	
DISTRIBUTIVE EDUCATION			
General Merchandise	11	73	
Other	31	73	
HEALTH OCCUPATIONS EDUCATION			
Nursing	20	75	H
Other	16	72	
HOME ECONOMICS RELATED OCCUPATIONS			
Care and Guidance of Children	12	75	H
Food Management, Production, Services	8	72	
Other	8	74	
OFFICE OCCUPATIONS			
Accounting and Computing	14	75	H
Business Data Processing Systems	5	68	L
Filing, Office Machines, Clerical	19	72	
Other	29	68	L
TRADE AND INDUSTRIAL OCCUPATIONS			
Automotive Services	36	70	
Construction & Maintenance Trades	18	75	H
Electronic Occupations	10	70	
Graphic Arts Occupations	11	64	L
Metalworking Occupations	20	68	L
Personal Services	12	70	
Public Service Occupations	15	65	L
Quantity Food Occupations	9	72	
Small Engine Repair	8	64	L
Other	40	68	L

[a]The comparison score is the adjusted mean score divided by the possible range. Comparison scores of 0 to 100 were possible.

[b]H indicates that the program was among the five highest scoring programs, L that it was among the five lowest scoring.

Guidance of Children, Accounting and Computing, and Construction and Maintenance Trades. Nursing ranked high on Quality in 1981. Both the Nursing and the Care and Guidance of Children programs also had high Quality scores for school programs, as shown in Table 4.

ROC/P programs with low scores on the Quality scale were in the Office Occupations and T & I areas. They were Graphic Arts Occupations, Small Engine Repair, Public Service Occupations, Business Data Processing Systems, Metalworking Occupations, Other Office Occupations, and Other T & I. Of special concern are Business Data Processing Systems and Metalworking Occupations since they represent relatively large ROC/P enrollments. Small Engine Repair was also ranked low on Quality in 1981.

Availability

Availability of instructional offerings and program promotion are measured by the Availability scale. This scale is based upon four items. Examples of responses weighted positively are:

- Faculty or students at other institutions are regularly informed about the program.
- A student does not need to pay for or furnish materials, supplies, or equipment in order to participate in the program.

Examples of responses weighted negatively are:

- Special conditions for admission to the program, such as a certain grade point average or minimum age, are required in addition to requirements for general admission to the institution.
- Inflexible class schedules inhibit the learning of students in the program.

Results on the Availability scale for high schools are shown in Table 6. The Availability scale score reflects perceptions of program promotion, admission requirements, and other barriers to program access. Some of the barriers might not necessarily be considered as negative factors. For example, admission requirements often reflect the level of proficiency required to successfully complete the program. Other barriers, such as the requirements to purchase materials or inflexible class schedules, may deprive some individuals of the opportunity to participate in programs or prevent them from performing to the best of their ability.

As seen in Table 6, the school programs with the highest scores on Availability were: Care and Guidance of Children and Other Home Economics Related Occupations (HERO); General Merchandise in Distributive Education; and two Agriculture programs, Ornamental Horticulture and Production. General Merchandise also scored high in

Table 6

Mean Availability Scale Comparison Scores for High School Programs

Program Area and Program	Number Reported	Comparison Score[a]	High/Low Scores[b]
AGRICULTURE			
Production	31	78	H
Mechanics	22	71	
Ornamental Horticulture	19	78	H
Other	32	75	
DISTRIBUTIVE EDUCATION			
General Merchandise	15	78	H
Other	4	70	
HEALTH OCCUPATIONS EDUCATION			
Nursing	12	60	L
Other	7	65	L
CONSUMER AND HOMEMAKING EDUCATION			
Comprehensive Homemaking	41	70	
Clothing and Textiles	45	65	L
Foods and Nutrition	49	75	
Other	110	75	
HOME ECONOMICS RELATED OCCUPATIONS			
Care and Guidance of Children	15	82	H
Other	16	78	H
INDUSTRIAL ARTS			
Drafting	30	69	
Electricity/Electronics	18	73	
Metals	29	66	L
Power/Automotive Mechanics	31	69	
Woods	41	68	L
Other	41	70	
OFFICE OCCUPATIONS			
Accounting and Computing	47	74	
Filing, Office Machines, Clerical	61	76	
Steno, Secretarial, and Related	48	71	
Typing and Related	52	75	
Other	14	72	
TRADE AND INDUSTRIAL OCCUPATIONS			
Automotive Services	35	70	
Drafting Occupations	17	76	
Electronic Occupations	14	76	
Graphic Arts Occupations	14	74	
Metalworking Occupations	29	69	
Woodworking Occupations	19	72	
Other	40	73	

[a]The comparison score is the adjusted mean score divided by the possible range. Comparison scores of 0 to 100 were possible.

[b]H indicates that the program was among the five highest scoring programs, L that it was among the five lowest scoring.

1980 and 1981, while the two Agriculture programs scored high on Availability for each of the three previous studies.

The school programs with the lowest scores on Availability were Nursing and Other Health Occupations Education. Also ranking low were the CHE program Clothing and Textiles, and the two Industrial Arts programs Metals and Woods. The low scores of Nursing, Woods, and Metals are of special concern since these programs had relatively large enrollments in 1981-82.

A review of survey responses for items in the Availability scale revealed that Health Occupations Education programs at schools often had special requirements for admission in addition to those required for general admission to the institution. These special requirements included a minimum age, a minimum grade level, and a certain grade point average. In addition, Health Occupations Education students often needed to pay for or furnish materials, supplies, or equipment in order to participate. Students at the school were also not regularly told about the program.

For the Industrial Arts programs, a review of survey responses showed that there was frequently a certain grade point average required for admission. As with the Health Occupations Education programs, Industrial Arts students often had to pay for or furnish materials, supplies, or equipment in order to participate. Compared with all school programs, Industrial Arts respondents less frequently reported that students at their school or other schools were regularly informed about the program. Further investigation seems necessary to identify barriers and determine how they are affecting participation in all programs with low Availability scores, especially those representing large enrollments.

Availability scores for ROC/P programs are shown in Table 7. Programs with high Availability scores were in the HERO, T & I, and Office Occupations areas. They were: Food Management, Production, and Services; Care and Guidance of Children; Quantity Food Occupations; Construction and Maintenance Trades; Accounting and Computing; and Business Data Processing Systems. Care and Guidance of Children also had a high Availability score for school programs (Table 6). This program plus the two Office Occupations programs had fairly large enrollments in 1981-82. It is of interest to note that the two ROC/P programs with the highest Availability scores, Food Management, Production, and Services and Quantity Food Occupations, each had less than 4% of the total ROC/P enrollment in 1981-82 (Table B-4).

As they were with the school programs, the ROC/P Nursing and Other Health

Table 7

Mean Availability Scale Comparison Scores for ROC/P Programs

Program Area and Program	Number Reported	Comparison Score[a]	High/Low Scores[b]
AGRICULTURE			
Mechanics	12	84	
Ornamental Horticulture	18	83	
Other	21	80	
DISTRIBUTIVE EDUCATION			
General Merchandise	11	82	
Other	31	84	
HEALTH OCCUPATIONS EDUCATION			
Nursing	20	73	L
Other	16	70	L
HOME ECONOMICS RELATED OCCUPATIONS			
Care and Guidance of Children	12	86	H
Food Management, Production, Services	8	87	H
Other	8	77	L
OFFICE OCCUPATIONS			
Accounting and Computing	14	85	H
Business Data Processing System	5	85	H
Filing, Office Machines, Clerical	19	80	
Other	29	83	
TRADE AND INDUSTRIAL OCCUPATIONS			
Automotive Services	36	79	
Construction & Maintenance Trades	18	86	H
Electronic Occupations	10	83	
Graphic Arts Occupations	11	79	
Metalworking Occupations	20	77	L
Personal Services	12	82	
Public Service Occupations	15	75	L
Quantity Food Occupations	9	87	H
Small Engine Repair	8	79	
Other	40	75	L

[a]The comparison score is the adjusted mean score divided by the possible range. Comparison scores of 0 to 100 were possible.

[b]H indicates that the program was among the five highest scoring programs, L that it was among the five lowest scoring.

Occupations Education programs scored low on Availability. Nursing also scored low on Availability in 1979 and 1981. A review of the survey responses revealed that, as found for the schools, ROC/P Health Occupations Education programs often had special requirements for admission in addition to those for general admission to the institution. Also, students often had to pay for or furnish materials, supplies, or equipment in order to participate. In addition, ROC/P Health Occupations Education respondents frequently reported that restrictive institutional policies and inflexible class schedules inhibited the learning of students in these programs. This latter finding was not noted in the 1981 study, and probably warrants further investigation. Four other ROC/P programs scored low on Availability in addition to the Health Occupations Education programs. Three of these were T & I programs: Public Service Occupations, Metalworking Occupations, and Other T & I. Also ranking low was Other HERO.

Student Services

Guidance, counseling, and placement services are measured with the Student Services scale. This scale is based upon six items. Examples of responses weighted positively are:

- o Vocational guidance and counseling services are provided for students in the program.
- o Program teachers maintain a formal information exchange with counselors.

Examples of responses weighted negatively are:

- o Written documents which list careers and occupations associated with the program or opportunities for advanced training are not available.
- o No placement services are provided for students in the program.

Results for the Student Services scale for high school programs are shown in Table 8. The highest ranking program was Agriculture Production. Also ranking high was Other Agriculture. Additional programs ranking high on Student Services were Nursing in Health Occupations Education, Typing and Related in Office Occupations, and Metalworking Occupations in T & I. None of these programs was consistently high in the earlier studies. Typing and Related was the program with the largest 1981-82 school enrollment, while Nursing also had a large enrollment.

School programs scoring low on Student Services included all of the CHE programs: Comprehensive Homemaking, Clothing and Textiles, Foods and Nutrition, and Other CHE. Also scoring low were General Merchandise in Distributive Education, and Other Industrial Arts. The CHE programs represented about 19% of all 1981-82 school enrollments.

Table 8

Mean Student Services Scale Comparison Scores for High School Programs

Program Area and Program	Number Reported	Comparison Score[a]	High/Low Scores[b]
AGRICULTURE			
Production	31	67	H
Mechanics	22	61	
Ornamental Horticulture	19	62	
Other	32	66	H
DISTRIBUTIVE EDUCATION			
General Merchandise	15	50	L
Other	4	52	
HEALTH OCCUPATIONS EDUCATION			
Nursing	12	66	H
Other	7	58	
CONSUMER AND HOMEMAKING EDUCATION			
Comprehensive Homemaking	41	50	L
Clothing and Textiles	45	43	L
Foods and Nutrition	49	46	L
Other	110	42	L
HOME ECONOMICS RELATED OCCUPATIONS			
Care and Guidance of Children	15	63	
Other	16	61	
INDUSTRIAL ARTS			
Drafting	30	59	
Electricity/Electronics	18	57	
Metals	29	60	
Power/Automotive Mechanics	31	61	
Woods	41	55	
Other	41	47	L
OFFICE OCCUPATIONS			
Accounting and Computing	47	65	
Filing, Office Machines, Clerical	61	61	
Steno, Secretarial, and Related	48	58	
Typing and Related	52	66	H
Other	14	52	
TRADE AND INDUSTRIAL OCCUPATIONS			
Automotive Services	35	65	
Drafting Occupations	17	65	
Electronic Occupations	14	57	
Graphic Arts Occupations	14	63	
Metalworking Occupations	29	66	H
Woodworking Occupations	19	56	
Other	40	54	

[a]The comparison score is the adjusted mean score divided by the possible range. Comparison scores of 0 to 100 were possible.

[b]H indicates that the program was among the five highest scoring programs, L that it was among the five lowest scoring.

Item response results for Distributive Education were reviewed for clues as to why General Merchandise scored low on Student Services. Compared with all school programs, a lower percentage of Distributive Education respondents reported that placement services or vocational guidance and counseling services were provided for students in the program, and that program teachers maintained a formal information exchange with counselors. They also least frequently noted that counselors provided students with vocational guidance and counseling services.

School program item responses for CHE and Industrial Arts were also reviewed for suggestions as to why they differed on Student Services and why CHE programs scored low. Compared with other areas, both were generally lower in providing placement services for students, especially CHE. Since these are not pre-employment areas, placement services are not expected. To this extent, CHE and Industrial Arts programs are penalized on the Student Services scale. However, CHE had the lowest percentage of respondents noting that vocational guidance and counseling services were provided for students. For Industrial Arts the percentage for this item was greater than the percentage for all school programs. Greater stress on counseling and guidance services would appear warranted for CHE programs.

Student Services scores for ROC/P programs are presented in Table 9. The highest scoring program was Nursing, which was also a high-scoring school program (Table 8). ROC/P Nursing had scored high on Student Services in 1981. Other high-scoring programs shown in Table 9 are Care and Guidance of Children in HERO, the Construction and Maintenance Trades and the Quantity Food Occupations programs in T & I, Other Agriculture, and Other Distributive Education.

The ROC/P programs scoring lowest on Students Services were primarily in the T & I area: Public Services Occupations, Personal Services, Small Engine Repair, and Other T & I. Small Engine Repair had scored low on this scale in 1981. Clues as to why these programs were low could not be obtained from the survey responses since other ROC/P programs in T & I scored high on Student Services. Also scoring low on this scale was Other HERO.

Facilities and Equipment

The Facilities and Equipment scale measures the adequacy of facilities, equipment, and supplies provided for instruction. The scale is based upon four items. Examples of responses weighted positively are:

- o There is adequate physical space for all students who would like to enroll in the program.

Table 9

Mean Student Services Scale Comparison Scores for ROC/P Programs

Program Area and Program	Number Reported	Comparison Score[a]	High/Low Scores[b]
AGRICULTURE			
Mechanics	12	71	
Ornamental Horticulture	18	74	
Other	21	78	H
DISTRIBUTIVE EDUCATION			
General Merchandise	11	73	
Other	31	78	H
HEALTH OCCUPATIONS EDUCATION			
Nursing	20	80	H
Other	16	73	
HOME ECONOMICS RELATED OCCUPATIONS			
Care and Guidance of Children	12	79	H
Food Management, Production, Services	8	70	
Other	8	61	L
OFFICE OCCUPATIONS			
Accounting and Computing	14	73	
Business Data Processing Systems	5	70	
Filing, Office Machines, Clerical	19	72	
Other	29	71	
TRADE AND INDUSTRIAL OCCUPATIONS			
Automotive Services	36	72	
Construction & Maintenance Trades	18	77	H
Electronic Occupations	10	64	
Graphic Arts Occupations	11	67	
Metalworking Occupations	20	63	
Personal Services	12	61	L
Public Service Occupations	15	60	L
Quantity Food Occupations	9	77	H
Small Engine Repair	8	62	L
Other	40	62	L

[a]The comparison score is the adjusted mean score divided by the possible range. Comparison scores of 0 to 100 were possible.

[b]H indicates that the program was among the five highest scoring programs, L that it was among the five lowest scoring.

- o Instructional equipment is typical of that used in appropriate business and industry.
- o Instructional equipment used for the program is maintained and repaired as needed.

Examples of responses weighted negatively are:

- o Poor physical facilities, inadequate equipment, or inadequate materials or supplies inhibit the learning of students in the program.
- o Instructional equipment used for the program is not maintained and repaired as needed.

High school programs ranking high on the Facilities and Equipment scale were distributed among four program areas, as seen in Table 10. Both Nursing and Other Health Occupations Education scored high. So did Care and Guidance of Children and Other HERO. In addition, Drafting Occupations in T & I and Typing and Related in Office Occupations scored high on Facilities and Equipment. Typing and Related also scored high in 1980 and 1981. It is of interest to note that both the Nursing and the Typing and Related programs had large school enrollments in 1981-82.

The school programs with the greatest inadequacies in Facilities and Equipment were Agriculture Production, Ornamental Horticulture, Other Distributive Education, Metals in Industrial Arts, and Electronic Occupations in T & I. Metals had rated low in 1979 and 1981. It is of some concern due to its relatively large 1981-82 enrollment.

The item responses for Agriculture were reviewed for clues as to why school programs in this area scored low on Facilities and Equipment. Agriculture respondents often reported that the instructional equipment used for the program was not maintained and repaired as needed. In addition, they reported that poor physical facilities, inadequate equipment, and inadequate materials or supplies inhibited student learning. Further study is needed to determine what the personnel of low-scoring programs perceive as deficiencies in facilities and equipment, and how they believe deficiencies can be remedied so that appropriate assistance can be provided.

Generally, ROC/P programs had higher scores on Facilities and Equipment than school programs did. ROC/P scores are shown in Table 11. The Business Data Processing Systems program in Office Occupations had the highest possible comparison score. Another Office Occupations program, Filing, Office Machines, and Clerical, also had a high score, as it did in 1979 and 1981. So did General Merchandise in Distributive Education, and Nursing in Health Occupations Education.

Table 10

Mean Facilities and Equipment Scale Comparison Scores for High School Programs

Program Area and Program	Number Reported	Comparison Score[a]	High/Low Scores[b]
AGRICULTURE			
Production	31	65	L
Mechanics	22	70	
Ornamental Horticulture	19	69	L
Other	32	76	
DISTRIBUTIVE EDUCATION			
General Merchandise	15	82	
Other	4	66	L
HEALTH OCCUPATIONS EDUCATION			
Nursing	12	91	H
Other	7	97	H
CONSUMER AND HOMEMAKING EDUCATION			
Comprehensive Homemaking	41	78	
Clothing and Textiles	45	78	
Foods and Nutrition	49	75	
Other	110	77	
HOME ECONOMICS RELATED OCCUPATIONS			
Care and Guidance of Children	15	88	H
Other	16	83	H
INDUSTRIAL ARTS			
Drafting	30	77	
Electricity/Electronics	18	70	
Metals	29	68	L
Power/Automotive Mechanics	31	77	
Woods	41	81	
Other	41	73	
OFFICE OCCUPATIONS			
Accounting and Computing	47	80	
Filing, Office Machines, Clerical	61	80	
Steno, Secretarial, and Related	48	78	
Typing and Related	52	83	H
Other	14	77	
TRADE AND INDUSTRIAL OCCUPATIONS			
Automotive Services	35	73	
Drafting Occupations	17	89	H
Electronic Occupations	14	69	L
Graphic Arts Occupations	14	77	
Metalworking Occupations	29	75	
Woodworking Occupations	19	81	
Other	40	80	

[a]The comparison score is the adjusted mean score divided by the possible range. Comparison scores of 0 to 100 were possible.

[b]H indicates that the program was among the five highest scoring programs, L that it was among the five lowest scoring.

Table 11

Mean Facilities and Equipment Scale Comparison Scores for ROC/P Programs

Program Area and Program	Number Reported	Comparison Score[a]	High/Low Scores[b]
AGRICULTURE			
Mechanics	12	86	L
Ornamental Horticulture	18	89	
Other	21	86	L
DISTRIBUTIVE EDUCATION			
General Merchandise	11	95	H
Other	31	87	
HEALTH OCCUPATIONS EDUCATION			
Nursing	20	96	H
Other	16	82	L
HOME ECONOMICS RELATED OCCUPATIONS			
Care and Guidance of Children	12	91	
Food Management, Production, Service	8	79	L
Other	8	89	
OFFICE OCCUPATIONS			
Accounting and Computing	14	92	
Business Data Processing Systems	5	100	H
Filing, Office Machines, Clerical	19	97	H
Other	29	89	
TRADE AND INDUSTRIAL OCCUPATIONS			
Automotive Services	36	86	L
Construction & Maintenance Trades	18	94	
Electronic Occupations	10	86	L
Graphic Arts Occupations	11	83	L
Metalworking Occupations	20	92	
Personal Services	12	99	H
Public Service Occupations	15	94	
Quanitity Food Occupations	9	95	H
Small Engine Repair	8	89	
Other	40	89	

[a]The comparison score is the adjusted mean score divided by the possible range. Comparison scores of 0 to 100 were possible.

[b]H indicates that the program was among the five highest scoring programs, L that it was among the five lowest scoring.

These four programs had relatively large ROC/P enrollments in 1981-82. Nursing had scored high on Facilities and Equipment for ROC/Ps in 1981, and it was a high-ranking school program this year (Table 10). Other ROC/P programs scoring high on Facilities and Equipment were Personal Services and Quantity Food Occupations, both in T & I. Cosmetology, a component of Personal Services, was high scoring in 1979 and 1981.

ROC/P programs that scored low on Facilities and Equipment still had relatively high comparison scores. The program with the lowest score was HERO Food Management, Production, and Services. Agriculture Mechanics, Other Agriculture, and Other Health Occupations also scored low. In addition, three ROC/P T & I programs had low scores on Facilities and Equipment. They were Automotive Services, Electronics Occupations, and Graphic Arts Occupations. Electronic Occupations was a low-scoring school program for this scale, as mentioned above. ROC/P Graphic Arts Occupations had a low score on Facilities and Equipment in 1981. Of greatest concern is the low score for Automotive Services, which had the largest ROC/P enrollment in 1981-82.

Clues as to why ROC/P Agriculture programs scored low on Facilities and Equipment were obtained by reviewing the item responses. As was found for school Agriculture programs, compared with all ROC/P programs Agriculture respondents often reported that poor physical facilities, inadequate equipment, and inadequate materials or supplies inhibited student learning. However, ROC/P Agriculture respondents also frequently reported that the instructional equipment was not typical of that used in appropriate business and industry.

Teacher-Pupil Ratio

The Teacher-Pupil Ratio scale measures the reasonableness of the student-teacher ratio for classroom instruction and for supervision of out-of-class student activities conducted as part of the program. The scale is based on two items. Responses of "very reasonable" or "reasonable" were weighted positively, while those of "unreasonable" or "very unreasonable" were weighted negatively.

Teacher-Pupil Ratio comparison scores for the high school programs are presented in Table 12. Those programs with high scores were Nursing, Other Health Occupations Education, Care and Guidance of Children in HERO, General Merchandise in Distributive Education, Comprehensive Homemaking in CHE, and the Graphic Arts Occupations and Other Trade and Industrial Occupations in T & I. Care and Guidance of Children also ranked high in 1979, 1980, and 1981. General Merchandise ranked high in 1979 and 1980. Nursing and Comprehensive Homemaking

Table 12

Mean Teacher-Pupil Ratio Scale Comparison Scores for High School Programs

Program Area and Program	Number Reported	Comparison Score[a]	High/Low Scores[b]
AGRICULTURE			
Production	31	65	
Mechanics	22	78	
Ornamental Horticulture	19	59	L
Other	32	70	
DISTRIBUTIVE EDUCATION			
General Merchandise	15	83	H
Other	4	78	
HEALTH OCCUPATIONS EDUCATION			
Nursing	12	98	H
Other	7	100	H
CONSUMER AND HOMEMAKING EDUCATION			
Comprehensive Homemaking	41	79	H
Clothing and Textiles	45	72	
Foods and Nutrition	49	70	
Other	110	71	
HOME ECONOMICS RELATED OCCUPATIONS			
Care and Guidance of Children	15	86	H
Other	16	78	
INDUSTRIAL ARTS			
Drafting	30	75	
Electricity/Electronics	18	52	L
Metals	29	61	L
Power/Automotive Mechanics	31	67	
Woods	41	75	
Other	41	66	
OFFICE OCCUPATIONS			
Accounting and Computing	47	72	
Filing, Office Machines, Clerical	61	77	
Steno, Secretarial, and Related	48	78	
Typing and Related	52	75	
Other	14	66	
TRADE AND INDUSTRIAL OCCUPATIONS			
Automotive Services	35	63	L
Drafting Occupations	17	77	
Electronic Occupations	14	64	L
Graphic Arts Occupations	14	79	H
Metalworking Occupations	29	72	
Woodworking Occupations	19	69	
Other	40	79	H

[a]The comparison score is the adjusted mean score divided by the possible range. Comparison scores of 0 to 100 were possible.

[b]H indicates that the program was among the five highest scoring programs, L that it was among the five lowest scoring.

both had relatively large 1981-82 enrollments.

The school programs with low scores for Teacher-Pupil Ratio (that is, those with unreasonable ratios) were Ornamental Horticulture in Agriculture, Electricity/Electronics and Metals in Industrial Arts, and Automotive Services and Electronic Occupations in T & I. Electricity/Electronics was also low scoring on Teacher-Pupil Ratio in 1979 and 1980, Metals was low in 1979 and 1981, and Electronic Occupations was low in 1980 and 1981. Metals was one of the programs with relatively high enrollment in 1981-82.

An assumption is often made that program quality is closely related to class size. For this year, three of the seven programs that ranked high on Teacher-Pupil Ratio also ranked high on Quality, while two of the five programs low on Teacher-Pupil Ratio also scored low on Quality. However, the correlation between Quality and Teacher-Pupil Ratio scores over all school programs was found to be .34. This means that only about 12% of the variance in Quality is associated with or accounted for by variance in Teacher-Pupil Ratio. Hence, for school programs, program quality is not highly related to class size based upon the measures used in this study.

The ROC/P program scores on the Teacher-Pupil Ratio scale are presented in Table 13. The high ranking programs included three that represented large ROC/P enrollments: General Merchandise in Distributive Education, Nursing in Health Occupations Education, and Accounting and Computing in Office Occupations. The General Merchandise and Nursing programs at schools were also high on Teacher-Pupil Ratio (Table 12). In addition, Other Health Occupations Education was high on this scale for both schools and ROC/Ps. The ROC/P General Merchandise program had the highest possible comparison score on Teacher-Pupil Ratio, as did the Food Management, Production, and Services program in HERO. General Merchandise and Nursing were ranked high in 1981, as was Food Management, Production, and Services in 1979 and 1981.

The ROC/P programs scoring low on Teacher-Pupil Ratio were in the Office Occupations and T & I areas. They were Business Data Processing Systems, Other Office Occupations, Automotive Services, Graphic Arts Occupations, Small Engine Repair, and Other T & I. Automotive Services and Business Data Processing had large 1981-82 enrollments, and so are of special concern. Automotive Services was also a low-scoring school program. Both Graphic Arts Occupations and Small Engine Repair had scores low on this scale for ROC/Ps in 1981.

Table 13

Mean Teacher-Pupil Ratio Scale Comparison Scores for ROC/P Programs

Program Area and Program	Number Reported	Comparison Score[a]	High/Low Scores[b]
AGRICULTURE			
Mechanics	12	87	
Ornamental Horticulture	18	90	
Other	21	93	
DISTRIBUTIVE EDUCATION			
General Merchandise	11	100	H
Other	31	91	
HEALTH OCCUPATIONS EDUCATION			
Nursing	20	97	H
Other	16	98	H
HOME ECONOMICS RELATED OCCUPATIONS			
Care and Guidance of Children	12	95	
Food Management, Production, Services	8	100	H
Other	8	85	
OFFICE OCCUPATIONS			
Accounting and Computing	14	98	H
Business Data Processing Systems	5	70	L
Filing, Office Machines, Clerical	19	92	
Other	29	78	L
TRADE AND INDUSTRIAL OCCUPATIONS			
Automotive Services	36	82	L
Construction & Maintenance Trades	18	92	
Electronic Occupations	10	85	
Graphic Arts Occupations	11	71	L
Metalworking Occupations	20	85	
Personal Services	12	88	
Public Service Occupations	15	94	
Quantity Food Occupations	9	87	
Small Engine Repair	8	81	L
Other	40	82	L

[a]The comparison score is the adjusted mean score divided by the possible range. Comparison scores of 0 to 100 were possible.

[b]H indicates that the program was among the five highest scoring programs, L that it was among the five lowest scoring.

The survey results were reviewed for clues as to why ROC/P T & I programs might score low on Teacher-Pupil Ratio. Compared with all ROC/P programs, a smaller percentage of T & I respondents reported that the student-teacher ratio was reasonable for classroom instruction. In addition, a relatively high proportion of T & I respondents (45%) reported that the question about the reasonableness of the student-teacher ratio for supervision of out-of-class activities was not applicable. This would result in a low score for the scale even though about all of those respondents for whom the question was applicable answered that the ratio was reasonable.

Considering the assumption that program quality is closely related to class size, two of the five ROC/P programs high on Teacher-Pupil Ratio were also high on Quality. Also, five of the six programs low on Teacher-Pupil Ratio were low on Quality. However, over all ROC/P programs the correlation between these two scales was .34, the same as was found for school programs. For ROC/P as with school programs, there does not appear to be much relationship between quality and class size based upon the questionnaire items used.

Teacher Qualifications

The Teacher Qualifications scale measures the professional qualifications of program teachers, as perceived by the respondents. The scale is based on three items. The most positive weights were assigned to the most positive responses to the questions:

- How many program teachers regularly attend professional meetings or in-service activities that upgrade their professional skills?
- Are program supervisors satisfied that effective teaching is accomplished by all or most of the teachers of the program?
- How frequently do teachers utilize state educational consultants?

Table 14 shows Teacher Qualifications scale scores for high school programs. Ranking highest was Other Health Occupations Education. Nursing was also high, as was Comprehensive Homemaking in CHE. This latter program was high on Teacher Qualifications in 1979 and 1980. Care and Guidance of Children in the HERO area and Drafting Occupations in T & I were also high on this scale.

Most scores on the Teacher Qualifications scale were relatively high, and in terms of raw scores there was little difference between the lowest high-scoring program and the highest low-scoring program. Perhaps teachers are reluctant to be critical of their own training and teaching effectiveness or of those of their colleagues. Those school programs with low ranks were: Other Distributive

Table 14

Mean Teacher Qualifications Scale Comparison Scores for High School Programs

Program Area and Program	Number Reported	Comparison Score[a]	High/Low Scores[b]
AGRICULTURE			
Production	31	82	
Mechanics	22	85	
Ornamental Horticulture	19	86	
Other	32	87	
DISTRIBUTIVE EDUCATION			
General Merchanidse	15	81	
Other	4	64	L
HEALTH OCCUPATIONS EDUCATION			
Nursing	12	91	H
Other	7	94	H
CONSUMER AND HOMEMAKING EDUCATION			
Comprehensive Homemaking	41	92	H
Clothing and Textiles	45	88	
Foods and Nutrition	49	83	
Other	110	88	
HOME ECONOMICS RELATED OCCUPATIONS			
Care and Guidance of Children	15	90	H
Other	16	76	L
INDUSTRIAL ARTS			
Drafting	30	79	
Electricity/Electronics	18	86	
Metals	29	82	
Power/Automotive Mechanics	31	81	
Woods	41	81	
Other	41	85	
OFFICE OCCUPATIONS			
Accounting and Computing	47	80	
Filing, Office Machines, Clerical	61	80	
Steno, Secretarial, and Related	48	76	L
Typing and Related	52	83	
Other	14	71	L
TRADE AND INDUSTRIAL OCCUPATIONS			
Automotive Services	35	85	
Drafting Occupations	17	90	H
Electronic Occupations	14	72	L
Graphic Arts Occupations	14	87	
Metalworking Occupations	29	78	
Woodworking Occupations	19	84	
Other	40	80	

[a]The comparison score is the adjusted mean score divided by the possible range. Comparison scores of 0 to 100 were possible.

[b]H indicates that the program was among the five highest scoring programs, L that it was among the five lowest scoring.

Education; Other HERO; Electronic Occupations in T & I; and both the Steno, Secretarial, and Related program and Other Office Occupations.

ROC/P programs with high scores on Teacher Qualifications were in five program areas, as seen in Table 15. Two programs, Care and Guidance of Children in HERO and Nursing in Health Occupations Education, were also high ranking for schools. Nursing was high on Teacher Qualifications in 1981. Other ROC/P programs high on this scale were: Agriculture Mechanics; Other Distributive Education; and Construction and Maintenance Trades, Personal Services, and Quantity Food Occupations in T & I.

As with the school programs, there was little difference between the lowest high-scoring ROC/P program and the highest low-scoring one. The three lowest scoring programs on Teacher Qualifications were in T & I: Graphic Arts Occupations, Small Engine Repair, and Electronic Occupations (which was low for schools too). Also scoring low were Ornamental Horticulture in Agriculture, Accounting and Computing in Office Occupations, and Other Trade and Industrial Occupations. It is of interest to note that within T & I three programs were ranked high on Teacher Qualifications while four others were ranked low.

Student Achievement

The Student Achievement scale measures the success of students in programs as perceived by the respondents. The scale is based upon two items, each of which required separate responses for female and male students. The most positive weights were assigned to the most favorable responses to the questions:

- Approximately what percentage of students who enter the program actually complete the requirements?
- To the best of your knowledge, how many of the students who complete the requirements of the program are able to successfully perform the competencies required?

The high school program with the highest score on Student Achievement was Nursing in Health Occupations Education, as shown in Table 16. Other programs that were high were General Merchandise in Distributive Education, Other Health Occupations Education, Other Agriculture, Care and Guidance of Children in HERO, and Woods in Industrial Arts. Woods and Nursing had large 1981-82 enrollments. Care and Guidance of Children was also high scoring in the 1980 and 1981 surveys.

The school programs low on Student Achievement were in four program areas, Agriculture, Distributive Education, HERO, and Office Occupations. They were: Ornamental Horticulture; Other Distributive Education; Other HERO; Steno,

Table 15

Mean Teacher Qualifications Scale Comparison Scores for ROC/P Programs

Program Area and Program	Number Reported	Comparison Score[a]	High/Low Scores[b]
AGRICULTURE			
Mechanics	12	90	H
Ornamental Horticulture	18	83	L
Other	21	89	
DISTRIBUTIVE EDUCATION			
General Merchandise	11	84	
Other	31	90	H
HEALT OCCUPATIONS EDUCATION			
Nursing	20	91	H
Other	16	86	
HOME ECONOMICS RELATED OCCUPATIONS			
Care and Guidance of Children	12	94	H
Food Management, Production, Services	8	86	
Other	8	85	
OFFICE OCCUPATIONS			
Accounting and Computing	14	83	L
Business Data Processing Systems	5	84	
Filing, Office Machines, Clerical	19	88	
Other	29	85	
TRADE AND INDUSTRIAL OCCUPATIONS			
Automotive Services	36	84	
Construction & Maintenance Trades	18	91	H
Electronic Occupations	10	82	L
Graphic Arts Occupations	11	70	L
Metalworking Occupations	20	88	
Personal Services	12	94	H
Public Service Occupations	15	84	
Quantity Food Occupations	9	90	H
Small Engine Repair	8	79	L
Other	40	83	L

[a]The comparison score is the adjusted mean score divided by the possible range. Comparison scores of 0 to 100 were possible.

[b]H indicates that the program was among the five highest scoring programs, L that it was among the five lowest scoring.

Table 16

Mean Student Achievement Scale Comparison Scores for High School Programs

Program Area and Program	Number Reported	Comparison Score[a]	High/Low Scores[b]
AGRICULTURE			
Production	31	74	
Mechanics	22	78	
Ornamental Horticulture	19	71	L
Other	32	86	H
DISTRIBUTIVE EDUCATION			
General Merchandise	15	89	H
Other	4	61	L
HEALTH OCCUPATIONS EDUCATION			
Nursing	12	93	H
Other	7	88	H
CONSUMER AND HOMEMAKING EDUCATION			
Comprehensive Homemaking	41	79	
Clothing and Textiles	45	78	
Foods and Nutrition	49	82	
Other	110	83	
HOME ECONOMICS RELATED OCCUPATIONS			
Care and Guidance of Children	15	86	H
Other	16	73	L
INDUSTRIAL ARTS			
Drafting	30	77	
Electricity/Electronics	18	76	
Metals	29	77	
Power/Automotive Mechanics	31	78	
Woods	41	86	H
Other	41	83	
OFFICE OCCUPATIONS			
Accounting and Computing	47	78	
Filing, Office Machines, Clerical	61	80	
Steno, Secretarial, and Related	48	70	L
Typing and Related	52	81	
Other	14	70	L
TRADE AND INDUSTRIAL OCCUPATIONS			
Automotive Services	35	79	
Drafting Occupations	17	82	
Electronic Occupations	14	76	
Graphic Arts Occupations	14	80	
Metalworking Occupations	29	78	
Woodworking Occupations	19	82	
Other	40	75	

[a]The comparison score is the adjusted mean score divided by the possible range. Comparison scores of 0 to 100 were possible.

[b]H indicates that the program was among the five highest scoring programs, L that it was among the five lowest scoring.

Secretarial, and Related; and Other Office Occupations.

Table 17 shows the Student Achievement scale comparison scores for ROC/P programs. Three of those ranking high were also high-ranking school programs: Other Agriculture, General Merchandise in Distributive Education, and Nursing in Health Occupations Education. General Merchandise and Nursing Assistant, a component of Nursing, scored high on this scale in 1981. The highest ranking ROC/P program on Student Achievement was Accounting and Computing in Office Occupations. This program, as well as General Merchandise and Nursing, had large ROC/P enrollments. Also scoring high on Student Achievement were Other Distributive Education and Other HERO.

The ROC/P program with the lowest score on Student Achievement was Business Data Processing Systems, which had a large enrollment. Also scoring low and with a large enrollment was Metalworking Occupations in T & I. Small Engine Repair in T & I was another program low on Student Achievement, as it was in 1981. Two other programs with low scores on this scale were Food Management, Production, and Services in the HERO area, and Other Office Occupations.

Sex Fairness

The Sex Fairness scale was based upon two items:

- In which areas have special efforts been made by program staff to reduce or eliminate sex bias, sex discrimination, and sex stereotyping?
- Which personnel are knowledgeable concerning issues of sex bias, sex discrimination, and sex stereotyping?

A positive weight was assigned to the areas or personnel listed, so the more response alternative checked, the higher the score on this scale. Responses of "none" or "don't know" were weighted negatively.

High school programs scoring high on Sex Fairness were in the Health Occupations Education, CHE, and HERO areas, probably reflecting the greater sensitivity of staff in these areas to the sex fairness issue. As seen in Table 18, the program with the highest score on Sex Fairness was Nursing. Second highest was Care and Guidance of Children, which was high ranking in the 1979, 1980, and 1981 studies. Also high on Sex Fairness was Other HERO. The high ranking CHE programs were Comprehensive Homemaking and Foods and Nutrition. Comprehensive Homemaking ranked high on this scale in the 1979 and 1981 surveys, while Foods and Nutrition was high in 1980 and 1981. Nursing, Foods and Nutrition, and Comprehensive Homemaking had large 1981-82 enrollments.

Each of the five school programs with low-ranking scores on Sex Fairness was

Table 17

Mean Student Achievement Scale Comparison Scores for ROC/P Programs

Program Area and Program	Number Reported	Comparison Score[a]	High/Low Scores
AGRICULTURE			
Mechanics	12	81	
Ornamental Horticulture	18	80	
Other	21	83	H
DISTRIBUTIVE EDUCATION			
General Merchandise	11	83	H
Other	31	85	H
HEALTH OCCUPATIONS EDUCATION			
Nursing	20	83	H
Other	16	77	
HOME ECONOMICS RELATED OCCUPATIONS			
Care and Guidance of Children	12	77	
Food Management, Production, Services	8	72	L
Other	8	84	H
OFFICE OCCUPATIONS			
Accounting and Computing	14	92	H
Business Data Processing Systems	5	46	L
Filing, Office Machines, Clerical	19	78	
Other	29	70	L
TRADE AND INDUSTRIAL OCCUPATIONS			
Automotive Services	36	74	
Construction & Maintenance Trades	18	74	
Electronic Occupations	10	79	
Graphic Arts Occupations	11	82	
Metalworking Occupations	20	73	L
Personal Services	12	77	
Public Service Occupations	15	80	
Quantity Food Occupations	9	78	
Small Engine Repair	8	71	L
Other	40	75	

[a]The comparison score is the adjusted mean score divided by the possible range. Comparison scores of 0 to 100 were possible.

[b]H indicates that the program was among the five highest scoring programs, L that it was among the five lowest scoring.

Table 18

Mean Sex Fairness Scale Comparison Scores for High School Programs

Program Area and Program	Number Reported	Comparison Score[a]	High/Low Scores[b]
AGRICULTURE			
Production	31	55	
Mechanics	22	66	
Ornamental Horticulture	19	48	L
Other	32	59	
DISTRIBUTIVE EDUCATION			
General Merchandise	15	47	L
Other	4	52	
HEALTH OCCUPATIONS EDUCATION			
Nursing	12	73	H
Other	7	58	
CONSUMER AND HOMEMAKING EDUCATION			
Comprehensive Homemaking	41	68	H
Clothing and Textiles	45	64	
Foods and Nutrition	49	67	H
Other	110	62	
HOME ECONOMICS RELATED OCCUPATIONS			
Care and Guidance of Children	15	70	H
Other	16	67	H
INDUSTRIAL ARTS			
Drafting	30	50	L
Electricity/Electronics	18	53	
Metals	29	56	
Power/Automotive Mechanics	31	56	
Woods	41	54	
Other	41	57	
OFFICE OCCUPATIONS			
Accounting and Computing	47	57	
Filing, Office Machines, Clerical	61	60	
Steno, Secretarial, and Related	48	53	
Typing and Related	52	63	
Other	14	47	L
TRADE AND INDUSTRIAL OCCUPATIONS			
Automotive Services	35	60	
Drafting Occupations	17	64	
Electronic Occupations	14	58	
Graphic Arts Occupations	14	66	
Metalworking Occupations	29	54	
Woodworking Occupations	19	57	
Other	40	46	L

[a]The comparison score is the adjusted mean score divided by the possible range. Comparison scores of 0 to 100 were possible.

[b]H indicates that the program was among the five highest scoring programs, L that it was among the five lowest scoring.

in a different program area. They were General Merchandise in Distributive Education, Ornamental Horticulture in Agriculture, Drafting in Industrial Arts, Other Office Occupations, and Other T & I. It appears that more special efforts are required to involve the staff of low-ranking programs in addressing the issues of sex bias, sex discrimination, and sex stereotyping. Of special concern is the Drafting program since over 50,000 students were enrolled in it in 1981-82.

Survey responses for Distributive Education were reviewed for ideas as to why the General Merchandise program had such a low score on the Sex Fairness Scale. It was found that Distributive Education was the program area for which the greatest percentage of school respondents reported that no special efforts had been made by program staff to reduce or eliminate sex bias, sex discrimination, and sex stereotyping. In addition, Distributive Education respondents most often reported that they did not know which personnel were knowledgeable concerning issues of sex bias, sex discrimination, and sex stereotyping.

ROC/P scores on Sex Fairness are given in Table 19. The highest ranking program was Accounting and Computing in Office Occupations. It had a relatively large ROC/P enrollment. Second highest for ROC/Ps on Sex Fairness was Care and Guidance of Children in HERO, which was also high scoring for school programs. The remaining ROC/P programs that scored high on Sex Fairness were in T & I. They were Personal Services, Quantity Food Occupations, and Construction and Maintenance Trades.

Three of the five ROC/P programs with the lowest scores on Sex Fairness were also in the T & I area: Small Engine Repair, Public Services, and Other T & I. Small Engine Repair was low on this scale in 1981. So was Agricultural Mechanics, which also scored low this year. Finally, Other HERO scored low on Sex Fairness for ROC/Ps.

Special Populations

The Special Populations scale was based on three items, each with subparts for seven groups of students with special needs. Examples of responses weighted positively are:

- Special efforts have been made in one or more areas by program staff to assure that students with special needs have equal educational opportunity in the program.
- Personnel have been trained about issues concerning students with special needs.

Examples of responses weighted negatively are:

- Program teachers lack information necessary for instructional planning for students with special needs.

Table 19

Mean Sex Fairness Scale Comparison Scores for ROC/P Program

Program Area and Program	Number Reported	Comparison Score[a]	High/Low Scores[b]
AGRICULTURE			
Mechanics	12	57	L
Ornamental Horticulture	18	61	
Other	21	64	
DISTRIBUTIVE EDUCATION			
General Merchandise	11	60	
Other	31	66	
HEALTH OCCUPATIONS EDUCATION			
Nursing	20	67	
Other	16	66	
HOME ECONOMICS RELATED OCCUPATIONS			
Care and Guidance of Children	12	79	H
Food Management, Production, Services	8	63	
Other	8	55	L
OFFICE OCCUPATIONS			
Accounting and Computing	14	83	H
Business Data Processing Systems	5	70	
Filing, Office Machines, Clerical	19	59	
Other	29	66	
TRADE AND INDUSTRIAL OCCUPATIONS			
Automotive Services	36	64	
Construction & Maintenance Trades	18	74	H
Electronic Occupations	10	59	
Graphic Arts Occupations	11	61	
Metalworking Occupations	20	68	
Personal Services	12	78	H
Public Service Occupations	15	54	L
Quantity Food Occupations	9	77	H
Small Engine Repair	8	46	L
Other	40	55	L

[a]The comparison score is the adjusted mean score divided by the possible range. Comparison scores of 0 to 100 were possible.

[b]H indicates that the program was among the five highest scoring programs, L that it was among the five lowest scoring.

- o No personnel have been trained about issues concerning students with special needs.

The school programs with high scores on Special Populations were in the Health Occupations Education, CHE, and HERO areas. As seen in Table 20, they were Nursing, Other Health Occupations Education, Comprehensive Homemaking, Care and Guidance of Children, and Other HERO. Care and Guidance of Children was also high scoring on Special Populations in each of the earlier studies. Both Nursing and Comprehensive Homemaking had large 1981-82 school enrollments.

While school programs high on Special Populations were concentrated in three program areas, each of the five lowest scoring programs was in a different area. The lowest score was obtained for Ornamental Horticulture in Agriculture. Also low were General Merchandise in Distributive Education, Woods in Industrial Arts, Other Office Occupations, and Woodworking Occupations in T & I. Woods was the program with the second largest school enrollment in 1981-82, so its low score is of special concern.

A review of survey responses revealed that the General Merchandise program scored low on Special Populations in part because respondents frequently did not know which personnel had been trained about issues concerning students with special needs. In addition, compared with all respondents, Distributive Education staff generally less frequently reported that instructional options were provided or instructional materials selected to assure that students with special needs had equal educational opportunity. Also, Distributive Education was the program area for which the greatest percentage of school respondents reported the lack of necessary information about the identity and special needs of handicapped and persons in courses not traditional to their sex.

Table 21 gives the Special Populations comparison scores for ROC/P programs. Those ranking high were in HERO, Office Occupations, and T & I. Highest ranking was Other HERO, followed by Accounting and Computing, which had a relatively large ROC/P enrollment. Three other high ranking programs on Special Populations were Quantity Food Occupations and Personal Services in T & I, and Food Management, Production, and Services in HERO.

The three ROC/P programs with the lowest scores on the Special Populations scale were in the T & I area: Public Service Occupations, Small Engine Repair, and Other T & I. Ornamental Horticulture also scored low, as it did in 1979 and 1981. It was a low-scoring school program, as mentioned above. Nursing was another ROC/P program that scored low on Special Populations, although its school

Table 20

Mean Special Populations Scale Comparison Scores for High School Programs

Program Area and Program	Number Reported	Comparison Score[a]	High/Low Scores[b]
AGRICULTURE			
Production	31	38	
Mechanics	22	38	
Ornamental Horticulture	19	28	L
Other	32	43	
DISTRIBUTIVE EDUCATION			
General Merchandise	15	36	L
Other	4	40	
HEALTH OCCUPATIONS EDUCATION			
Nursing	12	60	H
Other	7	52	H
CONSUMER AND HOMEMAKING EDUCATION			
Comprehensive Homemaking	41	50	H
Clothing and Textiles	45	49	
Foods and Nutrition	49	47	
Other	110	44	
HOME ECONOMICS RELATED OCCUPATIONS			
Care and Guidance of Children	15	50	H
Other	16	51	H
INDUSTRIAL ARTS			
Drafting	30	39	
Electricity/Electronics	18	39	
Metals	29	38	
Power/Automotive Mechanics	31	38	
Woods	41	37	L
Other	41	40	
OFFICE OCCUPATIONS			
Accounting and Computing	47	38	
Filing, Office Machines, Clerical	61	40	
Steno, Secretarial, and Related	48	43	
Typing and Related	52	46	
Other	14	32	L
TRADE AND INDUSTRIAL OCCUPATIONS			
Automotive Services	35	42	
Drafting Occupations	17	43	
Electronic Occupations	14	41	
Graphic Arts Occupations	14	45	
Metalworking Occupations	29	41	
Woodworking Occupations	19	36	L
Other	40	39	

[a]The comparison score is the adjusted mean score divided by the possible range. Comparison scores of 0 to 100 were possible.

[b]H indicates that the program was among the five highest scoring programs, L that it was among the five lowest scoring.

Table 21

Mean Special Populations Scale Comparison Scores for ROP/P Programs

Program Area and Program	Number Reported	Comparison Score[a]	High/Low Scores[b]
AGRICULTURE			
Mechanics	12	47	
Ornamental Horticulture	18	41	L
Other	21	52	
DISTRIBUTIVE EDUCATION			
General Merchandise	11	49	
Other	31	49	
HEALTH OCCUPATIONS EDUCATION			
Nursing	20	39	L
Other	16	44	
HOME ECONOMICS RELATED OCCUPATIONS			
Care and Guidance of Children	12	55	
Food Management, Production, Services	8	56	H
Other	8	64	H
OFFICE OCCUPATIONS			
Accounting and Computing	14	59	H
Business Data Processing Systems	5	44	
Filing, Office Machines, Clerical	19	43	
Other	29	51	
TRADE AND INDUSTRIAL OCCUPATIONS			
Automotive Services	36	45	
Construction & Maintenance Trades	18	49	
Electronic Occupations	10	42	
Graphic Arts Occupations	11	44	
Metalworking Occupations	20	44	
Personal Services	12	57	H
Public Service Occupations	15	32	L
Quantity Food Occupations	9	58	H
Small Engine Repair	8	39	L
Other	40	38	L

[a]The comparison score is the adjusted mean score divided by the possible range. Comparison scores of 0 to 100 were possible.

[b]H indicates that the program was among the five highest scoring programs, L that it was among the five lowest scoring.

counterpart was high on this scale.

ROC/P survey responses for Health Occupations Education were reviewed for clues as to why Nursing scored low on Special Populations. Most striking was the observation that Health Occupations Education was the program area for which the greatest percentage of ROC/P respondents reported that they lacked necessary instructional planning information about the identity and needs of special needs students. In addition, compared with all ROC/P respondents, Health Occupations Education staff generally less frequently reported that special efforts were made to provide instructional options and to eliminate attitudinal barriers to assure that students with special needs had equal educational opportunity. They also less frequently reported special efforts to assure that handicapped students had equal educational opportunity in Health Occupations Education programs.

SUMMARY

In this section, the data that appeared in Tables 4 through 21 are further reduced and recapitulated. The reader is reminded that all of the quantitative information presented in these tables was derived from extensive detailed data collected from 1,401 individual respondents who represented a cohort of approximately 25% of all public secondary level vocational education programs in California. These data have been reduced to numerical scores based on desirable characteristics for effective vocational education programs, and the scores have been grouped in nine areas suggested by federal vocational education legislation. Comparison scores for the major high school and ROC/P programs were calculated and presented in the foregoing tables. In this reduction process, some of the wealth of detail in the original data has been lost. The reader is cautioned about generalizing to any specific instance from the numbers reported here. Application of these results to any specific school, ROC/P, or program would require more detailed and specific information.

It is hoped that the scale information can be used to help indicate the overall strengths and weaknesses of statewide aggregations of California's vocational education programs and to identify areas where additional state-level effort might be indicated.

Summary of High- and Low-Ranking Programs on the Nine Scales

Table 22 shows the high school programs ranking high and low on the nine scales. The number of Hs and Ls for each program and program area are also shown. In addition, the relative size of each program is shown by a number giving its rank in terms of 1981-82 enrollments.

For schools, the high scores appear to cluster primarily in the Health Occupations Education and HERO areas. The most outstanding school program was Care and Guidance of Children, as it was in 1981. It was high on all scales except Student Services. Nursing was also high on eight scales, but it had a low score for Availability. Six other programs had high scores on three or more scales. Other Health Occupations Education had six high scores, Comprehensive Homemaking and Other HERO each had four high scores, and Agriculture Production, Other Agriculture, and General Merchandise each had three high scores. Except for Nursing, which ranked fifth, none of the programs with three or more high scores ranked above 11 in terms of size.

The high school programs with low scores cluster primarily in the Industrial

Table 22

High School Programs Ranking High and Low on the Nine Scales

Program Area and Program	Scale[a]									Number of		Size[b]
	Q	A	SS	FE	TP	TQ	SA	SF	SP	H	L	
AGRICULTURE										7	6	
Production	H	H	H	L						3	1	20
Mechanics										0	0	26
Ornamental Horticulture		H		L	L		L	L	L	1	5	28
Other	H		H				H			3	0	18
DISTRIBUTIVE EDUCATION										3	6	
General Merchandise		H	L		H		H	L	L	3	3	29
Other				L		L	L			0	3	30
HEALTH OCCUPATIONS EDUCATION										14	2	
Nursing	H	L	H	H	H	H	H	H	H	8	1	5
Other	H	L		H	H	H	H		H	6	1	21
CONSUMER AND HOMEMAKING EDUCATION										5	5	
Comprehensive Homemaking			L		H	H		H	H	4	1	11
Clothing and Textiles		L	L							0	2	14
Foods and Nutrition			L					H		1	1	6
Other			L							0	1	3
HOME ECONOMICS RELATED OCCUPATIONS										12	2	
Care and Guidance of Children	H	H		H	H	H	H	H	H	8	0	27
Other		H		H		L	L	H	H	4	2	15
INDUSTRIAL ARTS										1	13	
Drafting	L							L		0	2	7
Electricity/Electronics	L				L					0	2	19
Metals	L	L		L	L					0	4	9
Power/Automotive Mechanics												10
Woods	L	L					H		L	1	3	2
Other	L		L							0	2	4
OFFICE OCCUPATIONS										2	7	
Accounting and Computing										0	0	12
Filing, Office Machines, Clerical										0	0	13
Steno, Secretarial, and Related						L	L			0	2	16
Typing and Related			H	H						2	0	1
Other	L					L	L	L	L	0	5	8
TRADE AND INDUSTRIAL OCCUPATIONS										5	7	
Automotive Services					L					0	1	17
Drafting Occupations				H		H				2	0	23
Electronic Occupations				L	L	L				0	3	32
Graphic Arts Occupations					H					1	0	31
Metalworking Occupations			H							1	0	24
Woodworking Occupations	L								L	0	2	25
Other					H			L		1	1	22

Note. H indicates that the program was among the five highest scoring programs, L that it was among the five lowest scoring.

[a]The scales are as follows:

Q: Quality FE: Facilities & Equipment SA: Student Achievement
A: Availability TP: Teacher-Pupil Ratio SF: Sex Fairness
SS: Student Services TQ: Teacher Qualifications SP: Special Populations

[b]Size shows the rank of the program in terms of 1981-82 enrollments. See Table B-3 in Appendix B for the actual number of students enrolled.

Arts area, as was true in each previous survey. However, they appear in other areas as well. The largest number of low scores, five, was received by Other Office Occupations. Ornamental Horticulture also had five low scores, but it was high on Availability. Other school programs with three or more low scores were Metals, General Merchandise, Other Distributive Education, Woods, and Electronic Occupations. None of the programs with three or more low scores ranked higher than 8 in size, except for Woods, which ranked 2.

Considering more specifically the three largest school programs (excluding the "other" categories) in terms of size, Typing and Related was high on Student Services and on Facilities and Equipment. Woods was high on Student Achievement, but low on Quality, Availability, and Special Populations. Nursing was high on all nine scales except for Availability, on which it was low.

It is of interest to compare the CHE programs, usually considered general education, with the Industrial Arts programs, which are prevocational. CHE had five high scores and five low ones, while Industrial Arts had 13 low scores and one high score.

Table 23 shows the ROC/P programs ranking high and low on the scales. Clustering of scores here is not as apparent as with the school programs. Such clustering was not apparent in the 1979 and 1981 studies either. The most outstanding ROC/P program was Quantity Food Occupations, which had a high score on six scales. This was the most outstanding ROC/P program in 1981, too. Accounting and Computing also had high scores on six scales, but a low score on Teacher Qualifications. In addition, Nursing had high scores on six scales, but it had low scores on two. Other ROC/P programs with four or more high scores were Construction and Maintenance Trades, Care and Guidance of Children, and Personal Services. Three programs had three high scores: General Merchandise; Other Distributive Education; and Food Management, Production and Services.

The ROC/P programs with the most low scores were in the T & I area. Small Engine Repair had low scores on all scales except two: Availability, and Facilities and Equipment. Other T & I also had low scores on all scales except two: Facilities and Equipment, and Student Achievement. Public Service Occupations had five low scores, Graphic Arts Occupations had four, and Metalworking Occupations had three. Programs in other areas that had three low scores were Other HERO, Business Data Processing Systems, and Other Office Occupations.

Automotive Services, General Merchandise, and Business Data Processing

Table 23

ROC/P Programs Ranking High and Low on the Nine Scales

Program Are and Program	Scale[a] Q	A	SS	FE	TP	TQ	SA	SF	SP	Number of H	L	Size[b]
AGRICULTURE										4	5	
Mechanics				L	H			L		1	2	21
Ornamental Horticulture	H				L				L	1	2	15
Other			H	L			H			2	1	12
DISTRIBUTIVE EDUCATION										6	0	
General Merchandise				H	H		H			3	0	5
Other			H			H	H			3	0	4
HEALTH OCCUPATIONS EDUCATION										7	4	
Nursing	H	L	H	H	H	H	H		L	6	2	10
Other		L		L	H					1	2	16
HOME ECONOMICS RELATED OCCUPATIONS										10	5	
Care and Guidance of Children	H	H	H			H		H		5	0	11
Food Management, Production, Services		H		L	H		L		H	3	2	22
Other		L	L				H	L	H	2	3	24
OFFICE OCCUPATIONS										9	7	
Accounting and Computing	H	H			H	L	H	H	H	6	1	9
Business Data Processing Systems	L	H		H	L		L			2	3	6
Filing, Office Machines, Clerical				H						1	0	8
Other	L				L		L			0	3	3
TRADE AND INDUSTRIAL OCCUPATIONS										15	31	
Automotive Services				L	L					0	2	1
Construction & Maintenance Trades	H	H	H			H		H		5	0	13
Electronic Occupations				L		L				0	2	18
Graphic Arts Occupations	L			L	L	L				0	4	14
Metalworking Occupations	L	L					L			0	3	7
Personal Services			L	H		H		H	H	4	1	19
Public Service Occupations	L	L	L					L	L	0	5	20
Quantity Food Occupations		H	H	H		H		H	H	6	0	17
Small Engine Repair	L		L		L	L	L	L	L	0	7	23
Other	L	L	L		L	L		L	L	0	7	2

Note. H indicates that the program was among the five highest scoring programs, L that it was among the five lowest scoring.

[a]The scales are as follows:

Q: Quality
A: Availability
SS: Student Services
FE: Facilities & Equipment
TP: Teacher-Pupil Ratio
TQ: Teacher Qualifications
SA: Student Achievement
SF: Sex Fairness
SP: Special Populations

[b]Size shows the rank of the program in terms of 1981-82 enrollments. See Table B-4 in Appendix B for the actual number of students enrooled.

Systems were the three ROC/P programs with the largest 1981-82 enrollments when the "other" categories were excluded. Automotive Services was low scoring on two scales: Facilities and Equipment, and Teacher-Pupil Ratio. It was not high on any scale. General Merchandise was high on Facilities and Equipment, Teacher-Pupil Ratio, and Student Achievement. It was not low scoring on any scale. Business Data Processing Systems was high on Availability and on Facilities and Equipment. However, it had low scores on Quality, Teacher-Pupil Ratio, and Student Achievement.

Summary of Overall Performance on the Nine Scales

Figure 1 graphically summarizes the performance of all programs on the nine scales. In the figure, the bars show the range of comparison scores on each scale for the 32 high school programs and for the 24 ROC/P programs. The position of the mean or average score is indicated on the bar by an asterisk. The possible range of comparison scores from 0 to 100 is shown at the top and bottom of the figure.

For example, considering the Quality scale, the mean for the ROC/P programs was higher than the mean for the high school programs. This is true for all scales except Student Achievement, where the high schools mean is slightly higher. The range of the school program scores on Quality is wider than for ROC/P programs, which may be accounted for, in part, by the relatively low quality of the prevocational Industrial Arts programs.

On the Availability scale, the range of scores for ROC/P programs is somewhat narrower than the range for school programs. This could be because the more specialized ROC/P programs often have more special requirements for admission and participation than the introductory, prevocational, and general education-type high school programs.

The mean score for ROC/P programs on Student Services was above the upper range of the high school scores. As noted in the 1979 report (Neasham, 1981a), this result is unexpected since ROC/Ps are generally thought of as being responsible for only a fragment of the guidance, counseling, or placement services. The range of ROC/P scores was also somewhat narrower than the range for school programs.

The higher ROC/P scores on Facilities and Equipment might be explained by the relative newness and different funding of the ROC/Ps. This might also explain the narrower range of ROC/P scores.

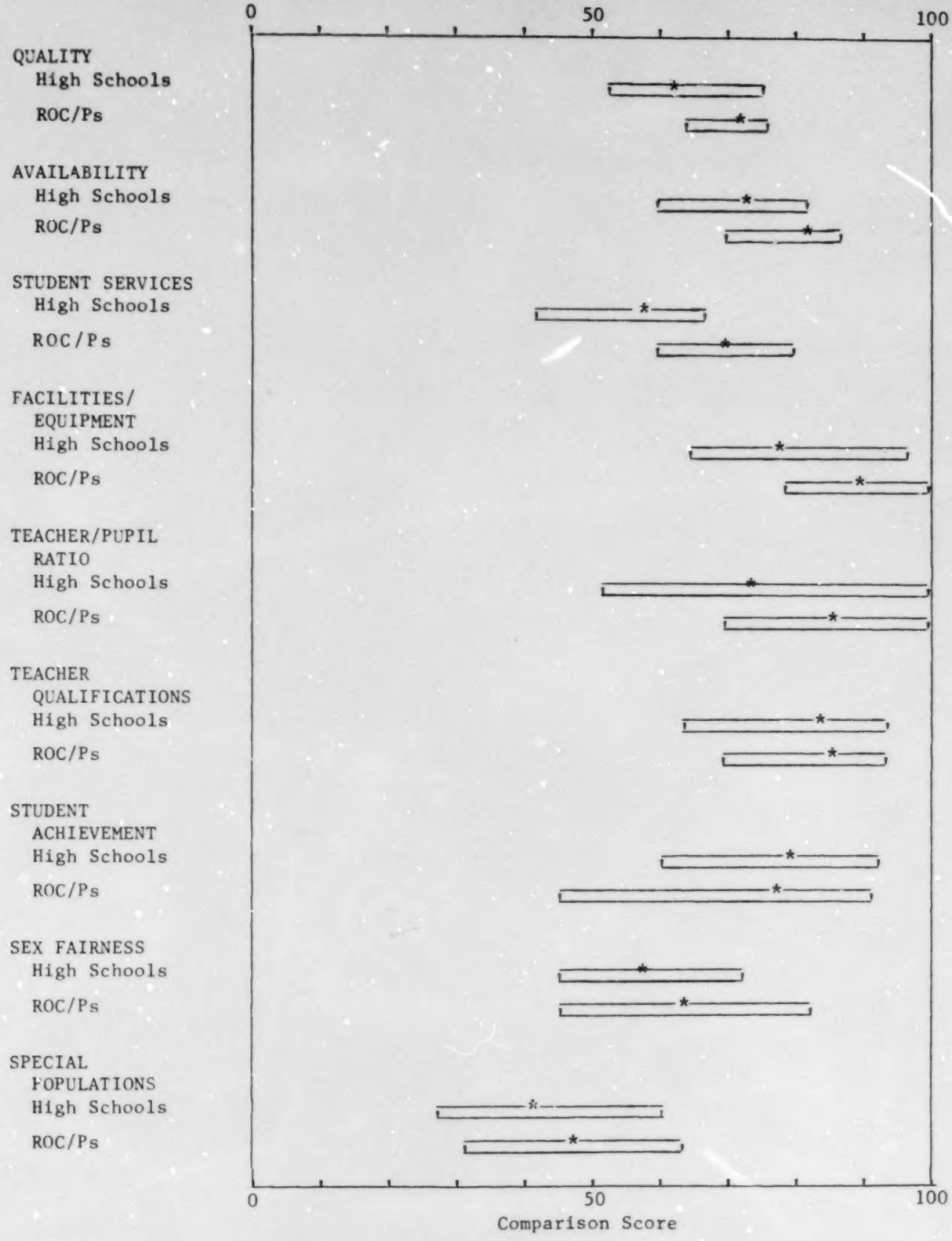

Figure 1. Range of comparison scores for high school and ROC/P programs (The mean is shown by an *.)

On Teacher-Pupil Ratio, the schools had a very wide range of scale scores. The higher ROC/P mean and narrower range may be due to the fact that ROC/Ps do not concentrate on introductory courses which often have larger class sizes.

The ROC/P mean was only slightly higher than the school mean on Teacher Qualifications, although the range was narrower than the range for schools. The small difference between the means is somewhat surprising since it might be expected that more specialists are used in ROC/P programs.

The Student Achievement means for school and ROC/P programs were similar. The wider range of scores for the ROC/P programs occurred because one program with few respondents, Business Data Processing Systems, had a very low score. If this program were excluded, the lowest Student Achievement comparison score for ROC/Ps would be 70, and schools would have the wider range.

The ROC/P mean was higher than the school mean on Sex Fairness, and the range of scores was greater than for schools. This indicates that ROC/P personnel were generally more knowledgeable concerning issues of sex bias, sex discrimination, and sex stereotyping. It also indicates that they were more often making special efforts in this area.

Comparison scores were lowest on the Special Populations scale. This may, at least in part, be an artifact of how the scale was constructed. For example, the items may be more difficult to meet than items for the other scales. The range of scores for school programs was the same as the range for ROC/P programs. However, the ROC/P mean was higher than the school mean, which is the opposite of what was found in the 1979 study but similar to 1981 results. The higher mean might indicate that ROC/P staff are more knowledgeable about which personnel have been trained about issues concerning students with special needs. It may also indicate that ROC/P personnel are more likely to have available to them information about the unique needs of students in the special target groups.

Summary of Programs Consistently Ranking High or Low

Survey results for 1979, 1980, 1981, and 1982 were reviewed to identify programs that were consistently high or low ranking. The following school programs ranked high for each of the four years on the scale(s) indicated:

1. Agriculture Production on Availability.
2. Ornamental Horticulture on Availability.
3. Care and Guidance of Children on Teacher-Pupil Ratio, Sex Fairness, and Special Populations.

School programs that ranked high for three of the four years and not low for the fourth were:

1. Agriculture Production on Quality.
2. General Merchandise on Availability and Teacher-Pupil Ratio.
3. Comprehensive Homemaking on Teacher Qualifications and Sex Fairness.
4. Child Development (in the CHE area) on Teacher Qualifications.
5. Foods and Nutrition on Teacher Qualifications, Student Achievement, and Sex Fairness.
6. Care and Guidance of Children on Quality and Student Achievement.
7. Typing and Related Occupations on Facilities and Equipment.

The following school programs ranked low for each of the four years. All of them are in the Industrial Arts area.

1. Drafting on Quality.
2. Electricity/Electronics on Quality.
3. Metals on Quality.
4. Woods on Quality.

The schools programs that ranked low for three of the four years and not high for the fourth were:

1. Electricity/Electronics on Teacher-Pupil Ratio.
2. Metals on Facilities and Equipment and on Teacher-Pupil Ratio.
3. Electronic Occupations on Teacher-Pupil Ratio.

The ROC/P programs consistently ranking high or low were more difficult to identify since the specific programs included in the survey reports were not as consistent from year to year as they were for the high schools. It should also be recalled that ROC/P programs were not separately reported in 1980. However, some consistencies were noted when subcomponents of programs were considered. For example, General Office Clerk is a subcomponent of Filing, Office Machines, and Clerical Occupations.

The ROC/P programs that ranked high for each of the three years 1979, 1981, and 1982 were:

1. Food Management, Production, and Services on Teacher-Pupil Ratio.
2. Filing, Office Machines, and Clerical Occupations or General Office Clerk on Facilities and Equipment.
3. Personal Services or Cosmetology on Facilities and Equipment.

The following ROC/P programs ranked high for two of the three years and

not low for the third year:

1. Ornamental Horticulture on Availability.
2. General Merchandise on Quality, Teacher-Pupil Ratio, and Student Achievement.
3. Nursing or Nursing Assistant on Quality, Student Services, Facilities and Equipment, Teacher-Pupil Ratio, Teacher Qualifications, and Student Achievement.
4. Care and Guidance of Children on Facilities and Equipment and on Teacher-Pupil Ratio.
5. Food Management, Production, and Services on Sex Fairness.
6. Filing, Office Machines, and Clerical Occupations or General Office Clerk on Sex Fairness and Special Populations.
7. Electronic Occupations or Radio/TV on Special Populations.
8. Personal Services or Cosmetology on Teacher Qualifications and Student Achievement.

There were two ROC/P programs that ranked low each of the three years:

1. Ornamental Horticulture on Special Populations.
2. Nursing or Nursing Assistant on Availability.

The ROC/P programs that ranked low for two of the three years and not high for the third were:

1. Agriculture Mechanics on Sex Fairness.
2. Ornamental Horticulture on Facilities and Equipment.
3. Accounting and Computing Occupations or Tellers on Teacher Qualifications.
4. Construction and Maintenance Trades or Carpentry on Facilities and Equipment and on Student Achievement.
5. Graphic Arts Occupations on Facilities and Equipment and on Teacher-Pupil Ratio.
6. Personal Services or Cosmetology on Teacher-Pupil Ratio.
7. Small Engine Repair on Quality, Student Services, Teacher-Pupil Ratio, Student Achievement, and Sex Fairness.

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APPENDIX A

PROGRAM SELF-ASSESSMENT QUESTIONNAIRE ITEMS USED TO DETERMINE ACCOUNTABILITY SCALE SCORES

Quality Scale Items*

2. Which of the following best describes this program at your institution? (a single course; a series of two courses; a series of three courses; a series of more than three courses).

7. Which of the following are used to recognize student success in the program? (Check all that apply.) (certificates of successful program completion; grades or credit; goal accomplishment charts on display; other; none of the above)

15. Approximately what percentage of students who enter this program actually complete the requirements? (90% or more; 80-89%; 70-79%; 60-69%; 50-59%; less than 50%; don't know; none enrolled) (Female and male reported separately.)

16. How satisfied do you believe that the students are with the outcomes of the program? (very satisfied; satisfied; dissatisfied; very dissatisfied; don't know; none enrolled) (Female and male reported separately.)

18. Is a record maintained of what is accomplished by former students after they leave this program?

19. Are inservice activities regularly offered to help program teachers upgrade their professional skills? (Check all that apply.) (yes, state activities; yes, county activities; yes, local activities; no)

21. Are program supervisors satisfied that effective teaching is accomplished by all or most of the teachers of this program?

22. How often are the goals and objectives of this program reviewed and updated by program teachers? (more than once a year; about once a year; about every two or three years; about every four or five years; never or almost never; don't know)

23. How often is an analysis done to update the competencies or job skills that need to be taught in this program? (more than once a year; about once a year; about every two or three years; about every four or five years; never or almost never; don't know)

24. Do program teachers actively participate in the selection of courses for this program? (yes; sometimes; no; don't know)

25. Do program teachers actively participate in planning the content of proposed courses? (yes; sometimes; no; don't know)

26. Do teachers of this program participate directly in instructional budget development and control? (yes; sometimes; no; don't know)

27. Do program teachers participate in the selection of instructional equipment and materials? (yes; sometimes; no; don't know)

*Response alternatives other than "yes; no; don't know" are enclosed in parentheses after the question. Item numbers are those used in the questionnaire.

30. How adequate are teacher time allocations for supervision and preparation? (very adequate; adequate; inadequate; very inadequate)

31. How adequate are teacher time allocations for planning and developing curriculum and instructional materials? (very adequate; adequate; inadequate; very inadequate)

34. For which of the following do you think program teachers lack the information necessary for instructional planning? (Check all that apply.) (characteristics of students; societal needs data; new and emerging occupations; employment projections by occupation; current and projected skill requirements; information is not lacking for any of the above)

35. How many of the program teachers make visits to appropriate business or industrial operations to make placement contacts and learn current skill requirements? (all of them; most of them; about half of them; some of them; none of them; not applicable)

36a. Is there a districtwide vocational education advisory committee?

36b. If "Yes," do teachers of this program have the opportunity to interact with the districtwide vocational education advisory committee?

37a. Is there a subject matter advisory committee?

37b. If "Yes," do teachers of this program receive advice and help from subject matter advisory committee members?

38. How frequently do program teachers utilize state educational consultants? (very frequently; frequently; infrequently; very infrequently)

39. How frequently do program teachers utilize county educational consultants? (very frequently; frequently; infrequently; very infrequently)

40. Which of the following kinds of evidence is there to verify that program teachers are doing a good job? (Check all that apply.) (data showing a high program completion rate; data showing graduate satisfaction; data showing employer satisfaction; other; none of the above)

41. Does an administrator periodically verify teacher performance in achieving stated program objectives?

42. How often is an evaluation made to determine whether program objectives are accomplished? (more than once a year; about once a year; about every two or three years; about every four or five years; never or almost never)

43. Which of the following out-of-class learning experiences are provided students as an integral part of instruction? (Check all that apply.) (paid or unpaid work experience; student-operated business or manufacturing experiences; cooperative vocational education; supervised occupational experience program; field trips; other; none of the above)

44a. Are vocational student organization activities an integral, planned part of instruction?

44b. If "Yes," are the students provided with an opportunity to be involved in student organizational activities beyond the local level?

45. Does this program provide open entry and open exit in keeping with individual student needs and performances?

46. Does this program provide for alternative teaching methods or materials in keeping with individual student needs and preferences?

47. For how many students in this program are individual training plans prepared and used? (all of them; most of them; about half of them; some of them; none of them)

48. Is an evaluation periodically made of each student in this program to see if he or she is making progress toward reaching his or her career goal?

50. Are specific completion standards for this program a matter of record?

51. Is a written document available which specifies the articulation of this program with related programs?

55. Which of the following describe the source of the curriculum materials used in this program? (Check all that apply.) (originated or developed by local staff; adapted or adopted from other sources; furnished by the state vocational education unit; commercially prepared; developed by special agency or association; other)

56a. In the last 12 months have program teachers received any results from student or employer follow-up studies?

56b. If "Yes," have program teachers utilized the follow-up results in program planning or improvement?

Availability Scale Items

3. Which of the following do you regularly inform about this program? (Check all that apply.) (faculty at your institution; students at your institution; faculty or students at other institutions; school district administrators; school board members; parents; the general public; none of the above)

5. Are there any of the following special requirements for admission to this program in addition to those required for general admission to your institution? (Check all that apply.) (minimum age; minimum grade level; certain grade point average; completion of prerequisite course; other; none of the above)

6. Does a student need to pay for or furnish materials, supplies, or equipment in order to participate in this program? (yes, more than $10; yes, $1 to $10; no)

8a. Do any of the following inhibit the learning of students in the program? (Check all that apply.) (restrictive institutional policies; inflexible class schedules; none of the above)

Student Services Scale Items

49a. Are written documents available which list careers and occupations associated with this program or opportunities for advanced training after completion of the program?

49b. If "Yes," to whom are these documents made available? (Check all that apply.) (students; teachers; counselors; administrators; parents)

52a. Are vocational guidance and counseling services provided for students in this program?

52b. If "Yes," who provides students with vocational guidance and counseling services? (Check all that apply.) (program teachers; counselors; career center staff; other)

53. Which of the following types of placement services are provided for students in this program? (Check all that apply.) (cooperative program with state employment service; vocational teacher referral; counselor assistance; work experience staff assistance; subject matter advisory committee assistance; other; none of the above)

54. Do program teachers maintain a formal information exchange with counselors at your institution?

Facilities and Equipment Scale Items

4. Is there adequate physical space for all students who would like to enroll in the program at any given time?

8a. Do any of the following inhibit the learning of students in the program? (Check all that apply.) (poor physical facilities; inadequate equipment; inadequate materials or supplies; none of the above)

28. Is the instructional equipment used for the program maintained and repaired as needed? (yes; no; not applicable)

29. In your judgment, is the instructional equipment typical of that used in appropriate business and industry? (yes; no; not applicable)

Teacher-Pupil Ratio Scale Items

32. How reasonable is the student-teacher ratio for classroom instruction? (very reasonable; reasonable; unreasonable; very unreasonable; not applicable)

33. How reasonable is the student-teacher ratio for supervision of out-of-class student activities conducted as part of the program? (very reasonable; reasonable; unreasonable; very unreasonable; not applicable)

Teacher Qualifications Scale Items

20. How many of the program teachers regularly attend professional meetings or inservice activities that upgrade their professional skills? (all of them; most of them; about half of them; some of them; none of them)

21. Are program supervisors satisfied that effective teaching is accomplished by all or most of the teachers of this program?

38. How frequently do teachers utilize state educational consultants? (very frequently; frequently; infrequently; very infrequently)

Student Achievement Scale Items

15. Approximately what percentage of students who enter this program actually complete the requirements? (90% or more; 80-89%; 70-79%; 60-69%; 50-59%; less than 50%; don't know; none enrolled) (Female and male reported separately.)

17. To the best of your knowledge, how many of the students who complete the requirements of this program are able to perform successfully the competencies required? (all of them; most of them; about half of them; some of them; none of them; don't know; none enrolled) (Female and male reported separately.)

Sex Fairness Scale Items

13. In which of the following areas have special efforts been made by program staff to reduce or eliminate sex bias, sex discrimination, and sex stereotyping? (Check all that apply.) (facility access; promotion or recruitment; admission criteria; selection of instructional materials; staff training; guidance and counseling; placement; other; none of the above areas)

14. Which of the following personnel are knowledgeable concerning issues of sex bias, sex discrimination, and sex stereotyping? (Check all that apply.) (administrators; teachers of this program; instructional aides; counselors or career center staff; don't know)

Special Populations Scale Items

9. In which of the following areas have special efforts been made by program staff to assure that students with special needs have equal educational opportunity in this program? (Check all that apply.) (students with special needs: academically disadvantaged, economically disadvantaged, handicapped, minority group, persons in courses not traditional to their sex, displaced homemakers, limited English speaking; areas: elimination of attitudinal barriers*; recruitment, instructional options, selection of instructional materials, guidance and counseling, staff training, placement)

11. Which of the following personnel have been trained about issues concerning students with special needs? (Check all that apply.) (students with special needs: academically disadvantaged, economically disadvantaged, handicapped, minority group, persons in courses not traditional to their sex, displaced homemakers, limited English speaking; personnel: administrators, teachers of this program, instructional aides, counselors, don't know)

34. For which of the following do you think program teachers lack the information

*Attitudinal barriers: attitudes of school or community personnel which discourage special needs students from attaining educational goals.

necessary for instructional planning? (Check all that apply.) (identity and special needs of students: academically disadvantaged, economically disadvantaged, handicapped, minority group, persons in courses not traditional to their sex, displaced homemakers, economically depressed area students, limited English speaking; information is not lacking for any of the above)

APPENDIX B

SUPPLEMENTARY TABLES

Table B-1

Number of High School Program Offerings, by Individual Program

Program Area and Program	Number of Offerings In Cohort	In Sample	Reported
AGRICULTURE	236	113	104
Production	81	32	31
Mechanics	50	22	22
Ornamental Horticulture	47	21	19
Other	58	38	32
DISTRIBUTIVE EDUCATION	41	26	19
General Merchandise	33	18	15
Other	8	8	4
HEALTH OCCUPATIONS EDUCATION	41	31	19
Nursing	24	16	12
Other	17	15	7
CONSUMER AND HOMEMAKING EDUCATION	768	287	245
Comprehensive Homemaking	131	48	41
Clothing and Textiles	143	48	45
Foods and Nutrition	151	52	49
Other	343	139	110
HOME ECONOMICS RELATED OCCUPATIONS	52	39	31
Care and Guidance of Children	27	16	15
Other	25	23	16
INDUSTRIAL ARTS	501	208	190
Drafting	83	32	30
Electricity/Electronics	42	20	18
Metals	78	31	29
Power/Automotive Mechanics	90	35	31
Woods	118	41	41
Other	90	49	41
OFFICE OCCUPATIONS	717	251	222
Accounting and Computing	154	54	47
Filing, Office Machines, Clerical	206	69	61
Steno, Secretarial, and Related	171	58	48
Typing and Related	151	52	52
Other	35	18	14
TRADE AND INDUSTRIAL OCCUPATIONS	412	209	168
Automotive Services	92	41	35
Drafting Occupations	45	20	17
Electronic Occupations	45	21	14
Graphic Arts Occupations	34	17	14
Metalworking Occupations	59	36	29
Woodworking Occupations	45	21	19
Other	92	53	40
ALL HIGH SCHOOL PROGRAMS	2,768	1,164	998

Table B-2

Number of ROC/P Program Offerings, by Individual Program

Program Area and Program	Number of Offerings In Cohort	In Sample	Reported
AGRICULTURE	106	67	51
Mechanics	28	15	12
Ornamental Horticulture	38	19	18
Other	40	33	21
DISTRIBUTIVE EDUCATION	75	55	42
General Merchandise	31	16	11
Other	44	39	31
HEALTH OCCUPATIONS EDUCATION	64	44	36
Nursing	43	23	20
Other	21	21	16
HOME ECONOMICS RELATED OCCUPATIONS	45	37	28
Care and Guidance of Children	20	13	12
Food Management, Production, Services	12	11	8
Other	13	13	8
OFFICE OCCUPATIONS	144	78	67
Accounting and Computing	35	18	14
Business Data Processing Systems	16	8	5
Filing, Office Machines, Clerical	44	20	19
Other	49	32	29
TRADE AND INDUSTRIAL OCCUPATIONS	373	219	179
Automotive Services	69	43	36
Construction & Maintenance Trades	43	20	18
Electronic Occupations	28	15	10
Graphic Arts Occupations	28	15	11
Metalworking Occupations	28	22	20
Personal Services	21	13	12
Public Service Occupations	35	19	15
Quantity Food Occupations	20	14	9
Small Engine Repair	11	10	8
Other	90	48	40
ALL ROC/P PROGRAMS	807	500	403

Table B-3

1981-82 Enrollments for High School Programs

Program Area and Program	1981-81 Enrollment	Percent of Program Area Enrollment	Percent of Total High School Enrollment (1,016,554)
AGRICULTURE (All Programs)	49,968	100.00	4.92
Production	15,810	31.64	1.56
Mechanics	9,115	18.24	.90
Ornamental Horticulture	5,805	11.62	.57
Other	19,238	38.50	1.89
DISTRIBUTIVE EDUCATION (All Programs)	9,693	100.00	.95
General Merchandise	5,082	52.43	.50
Other	4,611	47.57	.45
HEALTH OCCUPATIONS EDUCATION (All Programs)	69,407	100.00	6.83
Nursing	56,026	80.72	5.51
Other	13,381	19.28	1.32
CONSUMER AND HOMEMAKING EDUCATION (All)	195,389	100.00	19.22
Comprehensive Homemaking	39,993	20.47	3.93
Clothing and Textiles	33,073	16.93	3.25
Foods and Nutrition	54,560	27.92	5.37
Other	67,763	34.68	6.67
HOME ECONOMICS RELATED OCCUPATIONS (All)	29,318	100.00	2.88
Care and Guidance of Children	7,016	23.93	.69
Other	22,302	76.07	2.19
INDUSTRIAL ARTS (All Programs)	315,315	100.00	31.02
Drafting	51,775	16.42	5.09
Electricity/Electronics	17,187	5.45	1.69
Metals	44,054	13.97	4.33
Power/Automotive Mechanics	43,834	13.90	4.31
Woods	91,398	28.99	8.99
Other	67,067	21.27	6.60
OFFICE OCCUPATIONS (All Programs)	278,818	100.00	27.43
Accounting and Computing	38,850	13.93	3.82
Filing, Office Machines, Clerical	38,775	13.91	3.81
Steno, Secretarial, and Related	21,924	7.86	2.16
Typing and Related	128,648	46.14	12.66
Other	50,621	18.16	4.98
TRADE AND INDUSTRIAL OCCUPATIONS (All)	68,646	100.00	6.75
Automotive Services	20,130	29.32	1.98
Drafting Occupations	10,769	15.69	1.06
Electronic Occupations	1,461	2.13	.14
Graphic Arts Occupations	4,063	5.92	.40
Metalworking Occupations	10,239	14.91	1.01
Woodworking Occupations	9,992	14.56	.98
Other	11,992	17.47	1.18

Table B-4

1981-82 Enrollments for ROC/P Programs

Program Area and Program	1981-82 Enrollment	Percent of Program Area Enrollment	Percent of Total ROC/P Enrollment (89,757)
AGRICULTURE (All Programs)	7,431	100.00	8.28
Mechanics	1,556	20.94	1.73
Ornamental Horticulture	2,868	38.59	3.20
Other	3,007	40.47	3.35
DISTRIBUTIVE EDUCATION (All Programs)	12,118	100.00	13.50
General Merchandise	5,654	46.66	6.30
Other	6,464	53.34	7.20
HEALTH OCCUPATIONS EDUCATION (All Programs)	6,601	100.00	7.35
Nursing	3,802	57.60	4.23
Other	2,799	42.40	3.12
HOME ECONOMICS RELATED OCCUPATIONS (All)	5,769	100.00	6.43
Care and Guidance of Children	3,258	56.47	3.63
Food Management, Production, Services	1,461	25.33	1.63
Other	1,050	18.20	1.17
OFFICE OCCUPATIONS (All Programs)	18,955	100.00	21.12
Accounting and Computing	3,937	20.77	4.39
Business Data Processing Systems	4,486	23.67	5.00
Filing, Office Machines, Clerical	3,938	20.77	4.39
Other	6,594	34.79	7.34
TRADE AND INDUSTRIAL OCCUPATIONS (All)	38,883	100.00	43.32
Automotive Services	10,607	27.28	11.82
Construction & Maintenance Trades	2,968	7.63	3.31
Electronic Occupations	2,295	5.90	2.56
Graphic Arts Occupations	2,907	7.48	3.24
Metalworking Occupations	4,191	10.78	4.67
Personal Services	1,807	4.64	2.01
Public Service Occupations	1,801	4.63	2.01
Quantity Food Occupations	2,608	6.71	2.90
Small Engine Repair	1,064	2.74	1.18
Other	8,635	22.21	9.62

APPENDIX C

INTERCORRELATIONS OF SCALE VALUES

The comparison scores for the 998 school programs and for the 403 ROC/P programs were intercorrelated separately. These intercorrelations are shown in Table C-1. For both groups the scales were found to be relatively independent.

Considering the school programs, 32 of the 36 intercorrelations (89%) were less than .40. Values less than .40 can be considered as low correlations. The highest correlation was .56 between Quality and Student Services. Even so, this indicates that only 31% of the variance in Quality is associated with or accounted for by variance in Student Services. A correlation of .56 was also found between Special Populations and Sex Fairness. The correlation between Quality and Special Populations was .43, accounting for 19% of the variance. However, this correlation is probably spuriously high since these two scales had one item in common. The other school programs correlation exceeding .40 was .42 between Quality and Sex Fairness.

For the ROC/P programs, 30 of the 36 intercorrelations (83%) were less than .40. The highest two correlations were for the same pairs of scales that had the highest correlations for school programs. Quality and Student Services correlated .64, showing that 41% of the variance in one is associated with or can be accounted for by variance in the other. A correlation of .59 was found between Special Populations and Sex Fairness. Correlations of .48 were obtained between Student Services and Sex Fairness, Student Services and Special Populations, and Quality and Teacher Qualifications. This latter correlation is probably spuriously high since Quality and Teacher Qualifications had two items in common. Finally, the correlation between Quality and Sex Fairness was .44.

Table C-1

Intercorrelations of the Scale Scores for High School and ROC/P Programs

	Scale	Q	A	SS	FE	TP	TQ	SA	SF	SP
Q	Quality		.33	.56	.30	.34	.37	.32	.42	.43
A	Availability	.38		.17	.20	.19	.14	.05	.20	.21
SS	Student Services	.64	.35		.18	.15	.18	.15	.32	.29
FE	Facilties & Equipment	.22	.23	.20		.31	.14	.07	.13	.12
TP	Teacher-Pupil Ratio	.34	.11	.28	.03		.08	.13	.12	.14
TQ	Teacher Qualification	.48	.29	.38	.18	.15		.22	.25	.22
SA	Student Achievement	.37	.05	.10	.08	.13	.12		.17	.16
SF	Sex Fairness	.44	.28	.48	.16	.19	.33	.09		.56
SP	Special Populations	.39	.26	.48	.13	.13	.29	.12	.59	

Note. Correlations for 998 high school programs are shown above the major diagonal, while those for 403 ROC/P programs are shown below. Availability and Facilities and Equipment had one item in common, Quality and Special Populations had one item in common, Quality and Student Achievement had two items in common, and Quality and Teacher Qualifications also had two items in common.